

# American Aviation

The Independent  
Voice of  
American Aeronautics

15c A Copy

Vol. 2, No. 24

Published Twice a Month

May 15, 1939

\$3.00 a Year

## Fortnightly Review

### Utility

OUT in central Idaho last month on a snowbound ranch many miles from the nearest town a mother suffered a severe hemorrhage following childbirth. The infant died. The husband telephoned a forest ranger, who in turn summoned Pilot Ralph Knapp from Pocatello, more than 180 miles away. Knapp flew to the ranch with a physician who decided the woman should be flown to Challis. After flying her from the ranch the pilot made two more trips, bringing out the husband and a three-year-old son and returning with a load of supplies. Knapp landed near the ranch in a sheltered valley at 4,600 feet with towering 10,000-foot mountain peaks on all sides.

Here is the real story of the usefulness of the airplane. The life that Knapp saved is only one isolated instance. Probably to him it was routine, but it is the routine landing of this sort that is making possible the operation of mines, ranches and other enterprises in many western states. Many more such enterprises could grow up in the mountainous areas if transportation could be available for a fast trip to medical and surgical aid when a fellow's wife and family need it. The airplane can bring a new wave of development in the western mountain states. Pilot Knapp is one of those who is making aviation a utility.

### Late News

The CAA on May 10 announced first hearing dates of applications for certificates of convenience necessity for new lines extensions. Dates follow: May 31, National and Eastern airlines; June 5, Northwest; June 21, Mid-Continent, Braniff and Northwest; June 19, Western Air Express.

## Airplane Speeds Over 500 mph Made Possible by NACA Labs.

### ARMY CONTRACTS FOR 571 PLANES

Consolidated, Curtiss, Lockheed, Bell and Beech Share \$19,535,320

The award of contracts for 571 airplanes and equipment under authority of the Army Appropriation Act HR 4630, signed Apr. 26 by the President, was announced the following day by Louis Johnson, asst. secretary of war. The contract totals \$50,000,000, including engines and equipment for the complete airplanes.

The following contracts, amounting to \$19,535,320, were closed by Mr. Johnson immediately following the signing:

Heavy four-engined bombardment planes, type B-24, from Consolidated Aircraft Corp., San Diego, Cal., for a total of \$2,880,000.

Pursuit planes, single-engined, type P-40, from Curtiss Aeroplane Div., Curtiss-Wright Corp., New York, N. Y., totaling \$12,872,398.

Pursuit interceptor planes, two-engined, type YP-38, from Lockheed Aircraft Corp., Burbank, Cal., totaling \$2,180,728.

(Turn to page 5, col. 2)

### Boutelle Promoted



Richard S. Boutelle  
Who has been appointed director of the Bureau of Safety Regulation in the Civil Aeronautics Authority.

### More Expensive to Build Planes at Navy's Factory, Adm. Cook Admits

The building of planes and engines at the Naval Aircraft Factory, Philadelphia, costs more than obtaining similar equipment from commercial concerns, according to testimony given by Rear Adm. A. B. Cook, chief of the Navy's bureau of aeronautics, before a subcommittee of the House Appropriations Committee on the 1940 Navy appropriation bill.

"The Naval Aircraft Factory is building the SON-1 type at a cost of \$25,000," Adm. Cook told Congressman J. G. Scrugham (D. Nev.). "The price of the Curtiss Airplane and Motor Co. for that same airplane today is \$24,000. This plane is a Curtiss-designed plane of which they built 258 for the Navy, and in order to comply with the congressional mandate of manufacture 10% of the planes at the aircraft factory we have taken that design and are manufacturing 44 of them, and that cost is \$1,000

more than the Curtiss price, which is a very favorable comparison.

"Production price for the SON-1 planes manufactured at the aircraft factory . . . includes statistical overhead, officers' salaries involved, a proportionate part of the upkeep of the flying field, and so forth, but does not include interest, taxes, profits or insurance."

Adm. Cook told the committee that "it is very embarrassing at times" to be required definitely to build 10% of planes and engines at the Naval Aircraft Factory. "Speaking as chief of the Bureau of Aeronautics, I would much prefer to be permitted to build planes and engines there when it was to the definite benefit of the Navy, but not be required to do so," he said. The building of planes at the Naval Aircraft Factory is of great benefit to the Navy in training technical personnel to "criticize and assist" in the

(Turn to page 6, col. 4)

### Langley Field Tour Reveals Progress in Aerodynamic Research for Faster Aircraft

TWO outstanding aeronautical developments hailed as being of far-reaching importance in increasing airplane speeds were announced at the 14th annual inspection of the Langley Field laboratories of the National Advisory Committee for Aeronautics on May 2. More than 400 leaders of the industry and government attended the largest single inspection tour ever held at the nation's only fundamental research center for aeronautics.

Two new wind tunnels, each unique in its own field, were dedicated with appropriate ceremony.

One of the notable research advances was the announcement that air friction on airplane wings can be reduced very markedly by new wing designs which are not radical departures from the conventional designs. Large reductions in the drag of airplane wings is promised by this development.

"Air friction causes practically all the drag of an airplane wing in high-speed flight," the official press announcement said, "and acts in a thin layer sliding over the surface, called the boundary layer. This layer slides either smoothly or roughly."

"Even on the best airplane wings in use today with very carefully smoothed surfaces the change over from smooth laminar flow to turbulent flow occurs near the leading edge of the wing and this effect, called transition, places most of the wing surface in the drag-producing friction of the turbulent boundary layer."

"The cause of this transition from laminar to turbulent flow in the boundary layer has long been one of the most baffling mysteries in the field of the aerodynamic research scientist. For many years it has been the dream of research workers in this field to discover methods of delaying transition and so reducing markedly the air friction on wings in flight. It is this accomplishment that has been achieved in the NACA laboratories during the past year."

"New wing forms have been developed based on previously untested

(Turn to page 4, col. 3)

# "Wings of Safety"



## National Safety Council

Congratulations to these airlines, who received the 1938 awards for flying a total of well over 700,000,000 passenger miles without a passenger fatality, and for their outstanding contributions to the advancement of safety in air travel.

American Airlines  
Eastern Air Lines  
Pennsylvania Central Airlines  
Braniff Airways

T. W. A. (Eastern Division)  
United Air Lines  
Continental Air Lines  
Inland Air Lines



PESCO takes pride in the important part it plays in these achievements by providing dependable accessory equipment for planes of all airlines sharing in the awards.



**PUMP ENGINEERING SERVICE CORPORATION**

*Specialists to the Aviation Industry*

12910 TAFT AVENUE

CLEVELAND, OHIO, U. S. A.



## HESTER MAKES SIX PERSONNEL SHIFTS

Jacobs, Jaynes and Vest Return to Field; Boutelle and Koch Promoted

A series of important changes in the technical personnel of the Civil Aeronautics Authority were announced May 5 following approval of recommendations made by Clinton M. Hester, administrator. They are effective July 1.

Richard S. Boutelle, assistant director of the Bureau of Safety Regulation, was promoted to the directorship of that bureau.

Bryan M. Jacobs, director of the Bureau of Safety Regulation, has been transferred to the position of senior air carrier inspector, with headquarters at Seattle, Wash.

J. B. Jaynes, at present chief of the certificate and inspection division, has been made senior air carrier inspector at Ft. Worth, Tex.

Al S. Koch, who has been chief of the general inspection section, has been made chief of the certificate and inspection division to succeed Mr. Jaynes.

George W. Vest, who has been chief of the regulation and enforcement division, has been made supervisor of safety regulation with headquarters at Chicago.

Stuart G. Tipton, who has been aiding Vest, is expected to replace Vest as chief of the regulation and enforcement division.

All of the moves have been made, it is learned, to the satisfaction of all parties concerned. Jacobs' home town is Seattle and he has long expressed a desire to return to that region. Jaynes has likewise wanted to get back to the field and prefers his home state of Texas to office work in Washington. Vest was originally in Chicago and has not been modest in expressing a desire to return to that city. Most of the men were brought to Washington under the Bureau of Air Commerce regime of Fred D. Fagg, Jr.

Mr. Hester said the changes are made for the purpose of strengthening the field service and to make for greater efficiency in the organization.

Al Koch, who has increasingly become more of a factor within the CAA technical divisions, joined the Bureau of Air Commerce as inspector in 1931, working out of Chicago and St. Louis. He came to Washington in 1937 as assistant chief of the general inspection section, being promoted to chief of that section in 1938. A graduate of Kelly Field in 1917, he left the Army several years later, barnstormed throughout Pennsylvania and subsequently organized his own air service. Later he became general manager and test pilot for Mohawk Aircraft Co.

Tipton was an aide to Mr. Hester in the Treasury Dept. when the present administrator was aided in drafting and passing the Civil Aeronautics Act. Mrs. Tipton was for some years secretary to Fred D. Fagg, Jr. at the Air Law Institute in Chicago.

### KSAA Incorporated

Topeka—The Kansas State Aviation Association has been incorporated under the laws of Kansas, according to announcement by Dean Van Ness, secretary of the association and finance commissioner of Topeka. An emblem has been designed by Andy Swenson and is about ready for distribution. Annual dues have been set at \$2. The annual convention of the association will be held Dec. 6 and 7 in Wichita.

### Bryan Out in Idaho

Ed Bryan, for several years director of aeronautics for the state of Idaho, has been released from his job following a change in state administration.

## Calendar

- May 20—6th Annual (British) Empire Air Day.
- May 20-21—Aviation Demonstration, Ann Arbor, Mich.
- May 20-21—5th Annual New England Intercollegiate Air Meet, New Haven, Conn.
- May 22-29—SAE World Automotive Engineering Congress, New York.
- May 29—Dedication of CAA Communications Experimental Station, Municipal Airport, Indianapolis.
- May 25—Royal Aeronautical Society, Wilbur Wright Memorial Lecture, by G. W. Lewis, London.
- May 26-27—National Convention, Women's Aeronautical Association, Salt Lake City.
- May 28-29—Airport Managers' Association of Texas, Annual Conference, Galveston.
- May 31-June 2—Alabama State Air Tour Starting at Montgomery.
- June 3-4—9th Annual National Air Carnival, Birmingham, Ala.
- June 7-9—Technical Conference on Airport Construction, University of Michigan, Ann Arbor.
- June 8-9-10—Oklahoma Air Tour.
- June 8-11—SAE World Automotive Engineering Congress, San Francisco.
- June 12-14—Engineering & Maintenance Conference, Air Transport Assn., Los Angeles.
- June 15—Air Transport Assn., Meeting of Purchasing Committee, Los Angeles.
- June 15—Southwestern Division, National Association of Airport Executives, Oklahoma City.
- June 17-19—Carolina Aero Club's Aircade to New York World's Fair.
- June 19—Annual Meeting, Florida Aviation Association, West Palm Beach.
- June 19—I. Ae. S., Session of AAAS Summer Meeting, Milwaukee.
- June 19-24—AAAS Summer Meeting, Milwaukee.
- June 21-24—20th Convention, U. S. Junior Chamber of Commerce, Tulsa.
- June 21-30—Florida Air Tour to New York World's Fair, beginning at Jacksonville.
- June 24-July 9—10th Annual National Soaring Contest, Elmira, N. Y.
- June 25—2nd Amateur Air Show of Chicago, Curtiss Field.
- July 4—Airport Dedication, Madison, Wis.
- July 8-23—2d International Aeronautic Salon, Brussels, Belgium.
- July 10—ASME, Popular Meeting on "Trans-Oceanic Flying," Golden Gate Exposition, San Francisco.
- July 16-23—Royal National Aeronautic Association Meet, Rimini, Italy.
- July 17-23—Cup of King Peter II of Yugoslavia, Fairley Airport, near London, England.
- July 29—30th Anniversary of Army Aviation.
- Aug. 20-21—Annual Air Show, Sheldon Aeronautics Club, Sheldon, Iowa.
- Sept. 2-4—National Air Races, Cleveland.
- Sept. 4—Aero Club of the Republic of Portland, International Competition for Gordon Bennett Cup, Warsaw.
- Sept. 4-8—ASME & Inst. Mech. Eng. of Great Britain, Meeting on Mechanical Problems of Modern Transport, New York.
- Sept. 11-15—International Congress of the Aeronautical Sciences, I. Ae. S., Columbia University, New York.

## Latest Insignia



Here is the new aviation insignia of American Export Airlines which will be seen on trans-Atlantic flying boats to be operated by that company. It was designed by Henry Dreyfuss, industrial designer, who also has supervised the paintings and markings on the new Consolidated plane which Export expects to fly to France shortly. The same insignia without the bird may be used by American Export Lines, of which the airline is a subsidiary, on the funnels of its fleet of 18 steamships which will act as weather forecasting stations.

## NEW CAA DIRECTOR LONG IN AVIATION

Boutelle Was Tennessee Director Before Going to Washington

Richard S. Boutelle, who until recently was assistant director of the CAA's Bureau of Safety Regulation, received his latest in a long list of promotions when he was boosted to director of the Bureau on May 5. Boutelle has been looked upon with increasing favor by CAA officials since the formation of the Authority last August.

Entering aviation as a flying cadet in the Signal Corps' air service section in 1917, Boutelle graduated from the U. S. School of Military Aeronautics, University of Texas, on Aug. 31, 1918. In Apr. 1919, he was graduated as reserve military aviator with the rank of 2nd lieutenant, and three months later enlisted at McCook Field, Dayton, O., becoming a flight test observer and maintenance engineer at the same field two years later. On June 21, 1924, he was promoted to 1st lieutenant, Air Service Reserve.

In 1925, Boutelle joined the Dearborn Chemical Co. as lubrication and rust preventive specialist, leaving the company in 1929 to become factory inspector and manager of the hangar and repair shops at Spartan School of Aeronautics, Spartan Aircraft Co., Tulsa, Okla. One year later he was appointed director of the Spartan school. It was during this same year that he secured his transport pilot's license.

Boutelle became regional vice president of the National Association of State Aviation Officials in 1932 and was elected president of the organization the following year. Also in 1933, he served on the Aeronautical Chamber of Commerce's board of governors, was elected secretary of the state aeronautical committee of the American Legion, became chairman of the Department of Commerce's traffic control committee for the southeast, and was the aviation member of the Exchange Club.

On Sept. 20, 1933, Boutelle joined the Bureau of Air Commerce as aeronautical development expert, and one year later became the BAC's state coordinator. He served in this capacity until Jan. 1, 1935, when he assumed the position of assistant to the assistant director in charge of air regulation. In Mar. 1937, Boutelle was promoted to chief of the general inspection section, and less than a year later was named chief of the certificate and inspection division. In December of last year, he became assistant director, bureau of safety regulation.

### Lucien Cave in U. S.

Lucien Cave, internationally known artist of airplanes and official painter of the Air Ministry of France and of the Aero Club of France, is in this country engaged in fulfilling a few commissions for the New York World's Fair. A representative group of his work is now on display in the galleries of the New York Graphic Society, 10 W. 33rd St., New York City.

### Planes "Too Safe"

Syracuse.—The airplane of today is "too safe" because it "excuses" too many human faults, Earl Southee, representative of the CAA private flying division, told the Aero Club of Syracuse at a meeting here. "There is need for a foolproof plane but not for a dam-foolproof plane," he said. "The airplane is inherently safe but if the boys and girls aren't given proper ground training they are bound to get into trouble."

## Witters Returns to ICC, Two Examiners Reported to be Out

Myron Witters, chief of the formal proceedings and compliance division of the CAA, has requested that he be transferred back to the Interstate Commerce Commission. Mr. Witters was long with the ICC and was a member of the staff of the ICC Bureau of Air Mail. With the creation of the CAA he was taken over into the Bureau of Economic Regulation.

Two CAA examiners with long records in the ICC are understood to have been given their notices as of July 1. Reasons for their dismissals are not immediately known. A few other examiners are expected to be transferred to other work in the bureau.

Reports were current that the CAA was planning a number of major changes in the personnel taken over from the ICC but two members of the Authority strongly denied that the changes were more than routine or that they would involve more than four or five persons.

## Strike Called Off

The strike of Eastern Air Lines mechanics called by the Air Line Mechanics Association on April 14, was called off less than three weeks after it had started. Most of the strikers are being taken back by the company. At most the strike was only 25% effective and resulted in no interruption in service and apparently only a minor effect on passenger traffic during the first week. No official announcements have been made by either the company or the association. Eastern's passenger traffic during the strike was considerably above its traffic for the same period last year.

## A New Route

will be established in June by Continental between

## Wichita-Pueblo

offering greatly improved service between the East and Kansas and Colorado points.



America's Fastest Airline



## New NACA Wind Tunnels

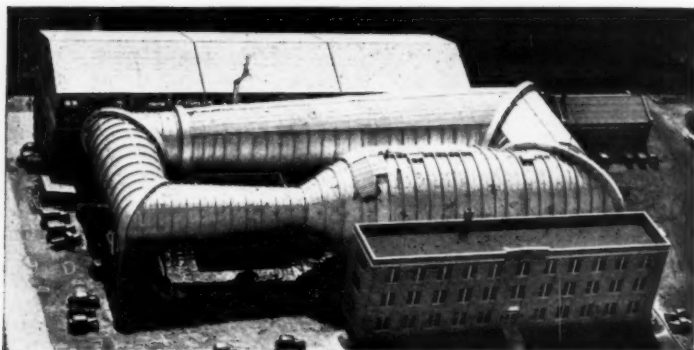
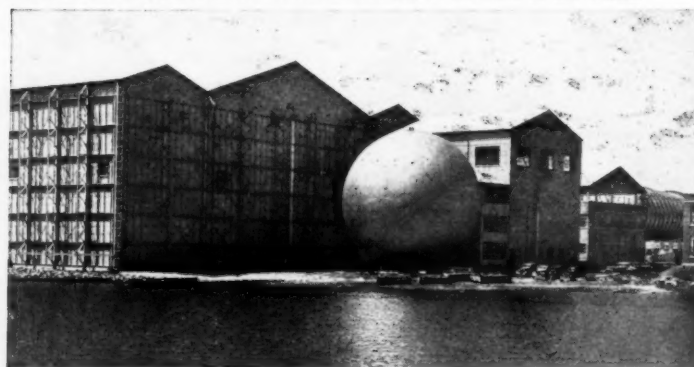


Photo of the 19-foot pressure tunnel completed only a few weeks ago and hailed as the finest and most modern laboratory of its kind in the world.



The 60-foot steel sphere houses the new 12-foot free-flight wind tunnel which will make possible tests on stability and control characteristics of airplanes.

## Two NACA Wind Tunnels Dedicated; Operators to Work Like "Sand Hogs"

Two new wind tunnels were dedicated on May 2 at Langley Field during the 14th annual inspection tour of the National Advisory Committee for Aeronautics laboratories. One is a 19-foot pressure wind tunnel for the development of improved methods for solving aerodynamic problems in the design of large high-speed aircraft. The other is a free flight wing tunnel to provide a completely new and previously untried method of attack on stability and control characteristics of airplanes.

The pressure tunnel is the only one of its kind in the world and one of the most unusual research structures in aviation. Of steel tubular construction with a maximum diameter of 60 feet and standing higher than a three-story building, the tunnel houses a test chamber in the 60-foot diameter portion of the tube where the engineers who are operating the tunnel will work under pressures from two or more atmospheres down to a partial vacuum. The jet itself which contains the model is 19 feet in diameter and air can be forced through this jet at speeds in excess of 250 miles per hour.

Operation of the pressure tunnel is similar to tunnel operations under rivers whereby the workers, like "sand hogs," work inside a pressure chamber. The tunnel is equipped with special air locks and a decompression chamber and the working section is equipped with air-cooling apparatus and dehumidifiers so as to make working conditions possible. The complete tunnel is 271 feet long and 128 feet wide. The propeller, which is 34½ feet in diameter, is driven by an 8,000-horsepower

electric motor. With this tunnel models can be operated more nearly at flight conditions, especially for large planes. Flutter and vibration of wings, propellers, and tail surfaces on high-speed planes will be investigated.

The free flight wind tunnel was completed only a few days before the inspection tour and is a steel sphere 60 feet in diameter and can be supplied with air compressed up to two or more atmospheres in which the operators will work. It also is equipped with a decompression chamber.

With this tunnel it will be possible not only to give pilots a general "feel" of the flying and handling characteristics of a new airplane before they ever take it up, but it also will be possible to obtain accurate records of the motion of airplanes with various degrees of stability under the action of known amounts of control application. New design standards for stability & control are expected to be the result.

### Bulletin

Application for certificate of convenience and necessity for carriage of mail and property on trans-Atlantic routes was filed with the CAA on May 10 by American Export Airlines. Application covers following routes: (summer) New York to Marseille, either direct or via Botwood, Foyne and Biscarosse (France); (winter) New York to Marseille, either direct or via Horta, Lisbon and Biscarosse. Details in June 1 issue.

## NACA LABS.

(Continued from page 1)

theories as to the causes of the transition effect, and boundary layers on these forms have been found to remain laminar over almost the entire wing surface. In this way the air friction has been reduced to levels never before expected."

One of these new forms was demonstrated to the visitors in comparison with one of the best conventional airfoil forms now in use on airplane wings. The conventional form suffers from the drag of the turbulent boundary layer over most of its surface and has about the same amount of drag as the wings on the best modern airplanes, the announcement said, while the new shape has the smooth-flowing low-drag laminar boundary layers over almost the entire surface and with a drag only a fraction of that of the conventional wing.

Second notable contribution reported is the discovery of methods to reduce the effect of "shock waves" on certain parts of the airplane and thus make possible much higher speeds, up to 500 miles per hour and more.

Although airplanes are being designed for fast speeds today, the committee said, the velocity of wind over certain parts of the airplane creates a drag when that velocity approaches the speed of sound. Wings, fuselage, engine nacelles, propellers, windshield—all of these external parts must be examined carefully.

"When the velocity of the air over any part of the airplane reaches the velocity of sound, a phenomenon known as the compressibility burble, or shock wave, occurs, resulting in a very large increase of drag. Since the air has to speed up to get past local protuberances such as windshields and cowlings, local flow speeds may reach this critical value on airplanes going little more than 300 miles per hour, though the speed of sound in air is about 750 miles per hour.

"When this occurs the resulting shock wave is an effective brake, preventing any appreciable increase of top speed—even with double or triple the engine power.

"With the usual blunt-nose NACA cowling, for example, an airplane speed of 325 miles per hour causes

## E. K. Smith Marks 11th Year

Evans K. Smith, president of Airlines Ticket Agency of E. K. Smith Inc., on May 1 marked his 11th year of service in commercial air travel. It was announced that he sold the first ticket out of New York on a regular contract passenger route, the former Colonial Air Transport Inc. which operated between New York and Boston. The announcement pointed out that Mr. Smith conducts the only air traffic school in the country.

local flow speeds at the front curve of the cowling exceeding 710 miles per hour. This design of cowling is a very poor streamline form at 400 miles per hour, though an excellent one at 250. A new design of NACA cowling delays the onset of shock waves and thus overcomes the difficulty.

"New forms of windshields and propellers developed in these investigations to avoid the onset of shock waves were discussed. With these new forms it will be possible to achieve top speeds in level flight exceeding 500 miles per hour without the occurrence of the drag creating compression shock."

In charge of the tour was Dr. George W. Lewis, director of aeronautical research for the NACA, and John Victory, secretary. Most of those attending went by boat from Washington and Baltimore. Members of the Committee who led various tours included Dr. Edward P. Warner, member of the CAA; Clinton M. Hester, administrator of the CAA, and Dr. Vannevar Bush, president of the Carnegie Institution. Work is to start soon on \$2,000,000 of new structures at Langley to expand the research center.



Serving the  
Nation's Airways

at ST. LOUIS

In The Heart Of America

Chicago and Southern receives passengers from . . .

AMERICAN AIRLINES  
TWA

MARQUETTE AIRLINES

. . . and speeds them on their way to major cities of the Mississippi Valley from Chicago to New Orleans.

Likewise, Chicago and Southern passengers make connections at St. Louis for points east and west.

We are proud to play our part in serving a wide national network of airways and we appreciate the cooperation of our connecting carriers.

Chicago & Southern  
Air Lines



Close-up view of the free-flight wind tunnel, a 60-foot steel sphere which marks a new advance in aeronautical research development.



## ARMY SELECTS NINE CIVIL AIR SCHOOLS

Northeast Left Out Entirely; First Classes to Start July 1

The War Dept. on May 8 announced that nine civilian flying schools have been selected for primary training of military flying students in connection with the Army expansion program. The nine were selected out of a total of 21 which had been approved by the Civil Aeronautics Authority.

The successful schools are: Spartan School of Aeronautics, Tulsa Municipal Airport, Tulsa, Okla.

Santa Maria School of Flying, Hancock Airport, Santa Maria, Cal.

Dallas Aviation School and Air College, Love Field, Dallas, Tex.

Ryan School of Aeronautics, Lindbergh Field, San Diego, Cal.

Alabama Institute of Aeronautics, Inc., Municipal Airport, Tuscaloosa, Ala.

Grand Central Flying School, Grand Central Air Terminal, Glendale, Cal.

Parks Air College, Parks Airport, East St. Louis, Ill.

Lincoln Airplane and Flying School, Union Air Terminal, Lincoln, Neb.

North Suburban Flying Corp., Curtiss Airport, Glenview, Ill.

A significant feature of the selections is the lack of a single school in the east and northeast. Three are in California. Two of the schools, Parks Air College and Alabama Institute of Aeronautics, are headed by Oliver L. Parks. Boeing School of Aeronautics, Oakland, Cal., had been reported included in earlier lists but was not mentioned in the official announcement.

This is the first time that flying training has been given to Army pilot candidates by other than service schools since the days when the Wright Brothers and Glenn H. Curtiss gave flying instruction.

Purpose of the program is to relieve Randolph Field of the task of primary training and by so doing increase its capacity by training advanced students only. The student will spend his first three months at one of the civilian schools undergoing primary training, the next three months at Randolph Field in San Antonio engaged in basic training, and the final three months at Kelly Field, also at San Antonio, in more advanced training. The year's course has been shortened to nine months.

The civilian schools will use primary training planes furnished by the government. One or more Air Corps officers will supervise the ground and flying training. The first class will enter the civilian flying schools July 1, followed by a class every six weeks.

Candidates for appointment as flying cadets must be unmarried citizens of the U. S., more than 20 years of age, and must not have reached their 27th birthday. They must have completed at least two years of college work or the equivalent. Pay of flying cadets is \$75 per month, plus \$1 per day for rations. Quarters are provided by the government. Where government quarters are not available at civilian schools \$22.50 per month will be furnished each student for living quarters. Flying clothing is furnished by the government.

Candidates must agree that upon successful completion of the course of instruction as a flying cadet they will, if their services are desired, serve for three years on active duty with the Regular Army Corps as reserve officers unless sooner relieved by competent authority. When a reserve officer has completed three years active duty (not necessarily continuous) he receives in addition to his regular pay and allowances, a bonus of \$500, except when he is relieved for the purpose of accepting a commission in the Regular Army.

## Windshield Icing is Tackled at Langley

Three new methods for keeping windshields of airplanes clear of ice during bad weather were demonstrated at the Langley Field NACA laboratories May 2.

One method was a rotating windshield wiper which clears water, snow and ice off the windshield. The principal difficulty here, the NACA said, is that conventional windshield wipers, as used in automobiles, have far too little power to accomplish the desired result. The new design of wiper with much more powerful drive and rotating with sufficient speed so that it does not obscure the pilot's vision is a promising step.

A second method is an electrically-heated windshield by which two sheets of thick glass are used with a liquid between and an electrical heating element located in the liquid. In this way the heat is much more effectively transmitted to the outer surface of the windshield and the danger of cracking the glass by excessive local heating is avoided.

A third method of providing heat is to pass air that has been heated by the engine exhaust between the two plates of glass. This requires no electrical power and has proved very effective. Continuation of this investigation should provide methods in the near future which will assure the prevention of windshield icing under the conditions encountered in flight, the committee said.

## 571 PLANES

(Continued from page 1)

Pursuit interceptor planes, single-engine, type XP-39, from Bell Aircraft Corp., Buffalo, N. Y., totaling \$1,073,445.

Fourteen photographic planes, type F-2, from Beech Aircraft Corp., Wichita, Kan., totaling \$528,749.

The remaining \$30,464,680 is to be used by the government in the purchase of engines, propellers, instruments, accessories, etc., which will be furnished by the government to the above contractors to be used in the complete planes. It was stated that this procedure will effect a saving for the government and facilitate production for the manufacturers. Contracts for the miscellaneous equipment will be announced soon.

An additional \$19,000,000 is expected to be expended within coming weeks for attack bombers, the design competition for which recently was completed at Wright Field, Dayton, O. A portion of the total expenditures involved will be met from regular fiscal year 1939 appropriations available for that purpose, it was said.

"War Department plans for the distribution of the \$250,000,000 remaining of the \$300,000,000 recommended by the President for the expansion of the Army Air Corps have been made and will be submitted to Congress at an early date," the War Dept. statement said. "The present appropriation including as it does \$50,000,000 of this \$300,000,000, provides the necessary money to start the Army Air Corps well on its way to the achievement of the 6,000 Army Air Corps planes authorized by Congress for the Army Air Corps," it said.

### Buffalo Wants Airport

Buffalo, N. Y.—The common council has approved a bill, to be presented to the state legislature, asking that the Buffalo airport in Cheektowaga be included within boundaries of the city of Buffalo.

### Whitney Revives Paper

O. J. Whitney, Inc., one of the largest fixed base operators in the east with headquarters now at Floyd Bennett Field in New York City, has revived *The North Beach Exhaust* which was discontinued when North Beach closed two years ago for reconstruction. The mimeographed publication will deal, as formerly, with matters and people in and around North Beach Airport. It will be distributed to all who are interested and concerned in the terminal and is edited in the company's office at 9 Rockefeller Plaza.

## Venetian-Blind Flap Gives Increased Lift

The NACA has devised a new type of flap known as the venetian-blind flap which more than doubles the maximum lifting capacity of a plane wing, giving the highest lift yet obtained with any flap device, it was revealed during the inspection tour at Langley Field, May 2. Another promising type, the NACA slotted flap, also was demonstrated.

Greatly increased wing loading has developed in recent years to meet the demand for increase in airplane speed, the method being to decrease the wing area. A few years ago a wing loading of 20 pounds per square foot of wing area was the maximum but at present airplanes are being constructed with wing loadings of more than 30 pounds per square foot. High lift devices such as slots or flaps have become necessary to permit reasonable landing and take-off speeds.

Demonstrations revealed that the venetian-blind flap produces exceptionally high lift.

### Airport Report Ready

The airport survey submitted to Congress by the Civil Aeronautics Authority has been printed and may be obtained for 75c per copy from the Government Printing Office, Washington. The survey is known as House Document No. 245 and is entitled "Airport Survey."

## Congressmen Seek NACA Lab. Funds

Despite the fact that a \$4,000,000 item for construction of a laboratory for the National Advisory Committee for Aeronautics at Sunnyvale, Cal., was cut from the second deficiency bill, certain air-minded Congressmen still are endeavoring to secure funds for the project.

Congressman John Costello (D., Cal.) on May 5 introduced a bill (H. R. 6200) authorizing construction of the laboratory and a similar measure was introduced on May 9 by Congressman John Z. Anderson (R., Cal.). Both bills authorize expenditure of \$10,000,000.

It is believed that if a specific authorization measure can be pushed through Congress for further aviation research facilities, whether at Sunnyvale or elsewhere, the prospect for securing adequate appropriations will be bettered.

### Borough Buys 75 Acres

Clearfield, Pa.—The borough council recently appropriated \$5,723.44 to purchase a 75-acre tract for an airport site. The land was bought from William A. E. Leitzinger, John Dufton and Howard Stewart, who, with Troop A, National Guard, owned the field.

*Look Behind the Weather Map*



*for Your True Record of Atmospheric Pressure*

Behind your official U. S. Weather Map, stands the Friez Barograph. From a nation-wide network of reporting stations, barometric data is accumulated and the map prepared.

A Barograph—not an indicating Barometer—alone can give the outdoors man . . . the Sportsman Pilot, the Yachtsman . . . the full knowledge of barometric pressure. Weather stories are composed and written before his eyes. The climax of the storm is seen before it breaks. He reads what's been going on—and learns what's going to be. The Barograph has helped take much of the mystery out of weather. It can do that much for you!

Write for complete literature today

**JULIEN P. FRIEZ & SONS, — BALTIMORE, MD.**  
Division of Bendix Aviation Corporation

[illegible]





# The Birdmen's Perch

Right now we're wondering if everybody has written for his or her *free* copy of the 5th edition of the Gulf Aviation Atlas. It's a swell big book packed with flying info, maps, charts, pictures, and air history. The supply is getting low, so you better send for yours right away. Write—a penny post card will do—to:

MAJOR AL WILLIAMS, alias "Tattered Wing-Tips,"  
Mgr. Gulf Aviation Products, Gulf Bldg., Pittsburgh, Pa.

## THE M-M-MYSTERY SHIP

Here's one that was sent us by Ben Martin of Ladysmith, Wis. Thank'ee, Ben!

An international spy (Platinum Blonde)



type No. 1) recently unearthed the following data on a new bomber built in a secret factory in one of the Balkan States.

"Model 'X' has a motor 9' long. The fuselage is equal to the sum of the length of the motor and  $\frac{1}{2}$  the fuselage. The length of the tail is the motor plus  $\frac{1}{2}$  the tail. The whole plane, naturally, is equal to the sum of the motor, tail, and fuselage."

In the general's other pocket she found the following:

"To find the wingspread, multiply the square root of the square root of the length of the plane by the length of the fuselage and add the length of the motor. And the speed may be represented by the sum of those two specifications which, plus one, are equal to another of the specifications plus one squared."

Being a smart girl—although a blonde—she figured out the answers and decided getting the blueprints would not be worth the effort. What do you think? Send in your figures to T.W.T. for checking. Official version by return mail.



## DOING IT THE HARD WAY

There are two ways to do everything . . .

the easy . . . and the hard.

Take refining our Gulfpride Oil for instance. We could be satisfied with ordinary methods that remove most of the impurities. But instead we use an *extra*, added refining step—the famous Alchlor process. This remarkable process—exclusive with Gulf—digs down so deep into the 100% Pure Pennsylvania that it removes still more dirt, sludge, and carbon-formers. It may be the hard way but, when you think what they can do to a motor . . . boys, it's worth it!

## THIS MONTH'S WHOPPER

Dear Major:

Of course we all know about the marvelous qualities of Gulf Aviation Gas when used as a mouthwash. But I claim to be the first to discover that it actually contains vitamins!

Out at our local flying field we have a mascot named Oscar. Oscar is a mosquito. Mind, he isn't one of those pigmy species that live in Florida, Louisiana, and New



Jersey. And which weigh only about five pounds apiece. Oscar is a real *California* mosquito.

We first found Oscar in one of the hangars drinking out of a can of kerosene. He wasn't very husky then but after we adopted him and he got his meals of Gulf Aviation Gas regularly, he really began to *GROW!* (Everything grows in California.)

We sure were proud of Oscar. But soon he got so big his meals presented a serious financial problem. We tried curtailing them but he began attacking the planes and drinking right out of the tanks. At last the boys decided we would have to stop using Gulf Aviation Gas or get rid of Oscar. When the coin flipping was over (it went to 11,111,112 out of 22,222,222)



we set a trap for the poor beastie. What we used was a case and a half of dynamite saturated with Gulf Aviation Gas. We attached a long fuse, lit it, and hid to await developments.

Oscar must have suspected something for he kept off a good distance for a while. But finally the aroma of that G.A.G. was too much for him. In he charged and gobbled down that dynamite before you could say "contact!" And no sooner had he swallowed it than it exploded with a roar that could be heard in Zanzibar.

Poor Oscar! I'm telling you, Major, we had a mighty sick mosquito on our hands for a couple of weeks.

Norman McEwan

Gulf Oil Corporation and Gulf Refining Company . . . makers of



**GULF AVIATION PRODUCTS**

## Publisher Launches Own Educational Venture for Stimulating Aviation

DeWitt Wallace of *Reader's Digest* Sends Roger Q. Williams to Talk to Clubs and Schools and Take First Timer's on Flights; Dated up for Months

A unique and apparently very successful venture in educating the public about aviation and bringing it into actual contact with airplanes by free educational flights, is being sponsored and conducted by the *Reader's Digest*.

The motivating force in the enterprise is DeWitt Wallace, publisher of the magazine who has taken up flying on his own.

The prime mover is none other than genial Roger Q. Williams whose flying background is well known and whose name means something to the public at large.

With Williams as the pilot and speaker, the *Reader's Digest* plane, a Fairchild 24, has been hopping from city to city on a purely philanthropic venture. Wallace is bearing the costs, and the only possible benefit from the enterprise is goodwill for the magazine.

Last summer Wallace bought a Fairchild 24 and became enamored with flying. He has about 100 hours to his credit and has so enjoyed the ease of getting over the ground that he decided something should be done to spread the gospel. The idea was basically to stimulate flying, to bring home to the average citizen that private flying is within his reach and that many people just haven't yet realized that now they can fly themselves.

Exceptionally modest himself, Wallace has remained in the background, placing the whole promotional venture into the hands of Williams. But Wallace was the instigator of the idea and it is Wallace who has some very definite ideas on "selling" aviation to the public.



He believes, for example, that the more universal and the more practically intelligent is America's knowledge of aviation, the better for the country and the better for aviation. This present plan is the result of his desire to do something to encourage this better understanding. He realized that with other new industries like radio and motor cars, any interested person could easily make contact with a radio store or an automobile to do his own studying and experimenting. In aviation this direct and personal approach is impeded by the relative scarcity of planes, their comparatively high cost, the fact that airplanes are not as easily accessible in the local community.

The upshot of his ruminating was his decision to put an authority and a plane in the field at the service of interested groups. Give people a chance to meet aviation face to face and aviation will do its own missionary work. Wallace is certain himself that once a person experiences flight and is allowed to handle the controls, he will be a fan.

Roger Williams and plane have been on the go ever since mid-January. These

cities are among those visited to date: Lancaster, Pa.; Baltimore, New York, Danbury, Conn.; Allentown, Washington, Bridgeport, Morristown, N. J.; Brookline, Mass.; Red Bank, N. J.; Manchester, N. H.; Teaneck, N. J.; Oyster Bay, L. I.; Trenton, Hartford, Waterbury, Cambridge, Williamstown, Pittsfield, Lawrence, Providence, Brooklyn, Portland, Me.; Harrisburg, Pa.; Birmingham, N. Y. and others.

So popular have the trips been that demands are coming in for "repeats." Baltimore has made three demands. Williams is dated up for months ahead.

Up to the first of May, Williams had talked to more than 25,000 persons and had taken up over 400 on their first flights. He talks to business groups like Kiwanis and Rotary clubs, chambers of commerce, American Legion, Sons of the American Legion, and schools. The clubs and other groups pay nothing for the talks or the flights. No pet theory or product is "sold" or boosted. After a person or student has made a flight he is given a certificate stating the date, altitude, ceiling, speed and also asserting that the person "actually handled the controls of the ship while aloft."

Both Wallace's plane and the one Williams uses (the latter owned by the *Reader's Digest* Association) are silver trimmed in blue.

## CAA Zoning Survey of Airports Completed

The airport section of the Civil Aeronautics Authority has prepared a survey of state airport zoning legislation, which includes not only a tabulation of legislation by states but includes copies of the various state laws. Only 11 states have laws on their books pertaining to the subject of zoning.

The current summary does not include legislation adopted since Jan. 1 of this year, nor does it include statutory provisions on the general subject of protection or clearing of airport approaches. A study on the latter subject is now in preparation. Copies of the zoning survey may be obtained by writing to Maj. A. B. McMullen, chief of the airport section. The study was made by John Hunter and W. R. Cavanaugh, staff members. For its further studies the airport section would appreciate receiving municipal or county ordinances or statutes pertaining to airports or kindred subjects.

### Private Field Leased

Charles Taylor of Jordan, N. Y., has leased a 20-acre field for use as a private flying field. He expects to erect a hangar and move his Fairchild plane to the field.

### Small Plane Burns

Knoxville, Tenn.—A small 40-hp. plane belonging to C. E. (Sunny) Rising's Knox-Flite Corp., was destroyed by fire recently at Knoxville's new airport. Origin was not determined. Loss was about \$1,300.

### Knoxville Port Loss

Knoxville, Tenn.—Operating expense of Municipal Airport exceeded revenues by \$2,657.91 during 1938, according to a recent report of City Auditor Hobart Carey. Expenses were \$3,772.74, of which \$5,764.02 was for salaries. Rent was \$6,014.83. The state contributed \$1,723.91 of which \$1,493.06 was expended.



Roger Q. Williams and *Reader's Digest* plane at Bridgeport, Conn.

## Aeronautical Charts

The U. S. Coast and Geodetic Survey, Dept. of Commerce, Washington, D. C., announces the following new charts which cancel all previous editions. Pilots are warned against using obsolete charts.

### New Alaska Aeronautical Chart

KENAI. Feb. 1939. Scale, 1:1,000,000. Size 19 x 28". Price 40c. (The first of a new series of nine aeronautical charts of Alaska, located in latitude 48° 30'-61° 45' north and longitude 145°-157° west, covering an area of some 90,000 sq. mi. Lithographed in 14 colors, showing towns, topographic names and railroads in black; contours in brown; roads & trails in purple; airports, marine radio beacons and isogonic lines in red; drainage and glaciers in blue; and large towns in yellow.)

### New Edition, Aeronautical Radio Direction Finding Chart

(This cancels the Apr. 1938 edition.) 25-DP. Apr. 1939. Scale, 1:2,000,000. Size, 22 x 36". Located in latitude 26°-40' north and longitude 88°-107° west. An area of about 850,000 sq. mi. Price, 75c. Accumulation of numerous changes in radio facilities since the last edition.

### New Editions of Sectional Aeronautical Charts

(All sectional aeronautical charts are scaled at 1:500,000, and priced at 40c each, with a discount of 33 1/3% on orders, including assortments, grossing \$10 or more.)

BIRMINGHAM. Apr. 1939. Size, 20 x 46". Located in latitude 32°-34° north and longitude 84°-90° west, covering an area of about 56,000 sq. mi. Radio range at Meridian added and Atlanta radio range relocated.

DES MOINES. Apr. 1939. Size, 20 x 41". Located in latitude 40°-42° north and longitude 90°-96° west, covering an area of about 51,000 sq. mi. Sterling radio range deleted, the Moline range realigned and radio ranges from Springfield, Morse and Peoria added.

DETROIT. Apr. 1939. Size, 20 x 41". Located in latitude 42°-44° north and longitude 78°-84° west, covering an area of about 49,000 sq. mi. Includes addition of the radio range at Malton, Canada.

DUBUQUE. Apr. 1939. Size, 20 x 40". Located in latitude 42°-44° north and longitude 40°-96° west, an area of

some 49,000 sq. mi. This edition includes relocation of the La Crosse radio range and the realignment of the Minneapolis and Moline radio range courses.

LAKE SUPERIOR. Apr. 1939. Size, 20 x 38". Located in latitude 46°-48° north and longitude 84°-90° west, an area of about 47,000 sq. mi. An accumulation of changes since the last edition, including the Sault Ste. Marie radio range.

LINCOLN. Apr. 1939. Size, 20 x 41". Located in latitude 40°-42° north and longitude 96°-102° west, an area of about 51,000 sq. mi. Shows relocation of the North Platte radio range.

ORLANDO. Apr. 1939. Size, 20 x 33". Located in latitude 28°-30° north and longitude 80°-83° west, covering an area of some 23,000 sq. mi. Gives the Melbourne, Daytona Beach and Tampa radio ranges.

PHOENIX. Apr. 1939. Size, 20 x 46". Located in latitude 32°-34° north and longitude 108°-114° west, covering an area of some 55,000 sq. mi. Gives realignment of Phoenix radio range and changes in airports and beacons.

POCATELLO. Apr. 1939. Size, 20 x 40". Located in latitude 42°-44° north and longitude 106°-114° west, an area of some 49,000 sq. mi. New radio ranges at Idaho Falls, Dubois and Plymouth included and radio ranges at Burley and Pocatello relocated.

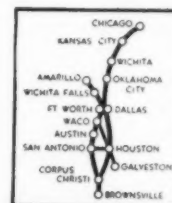
RAPID CITY. Apr. 1939. Size, 20 x 39". Located in latitude 44°-46° north and longitude 102°-108° west, an area of about 47,000 sq. mi. Beacons on that portion of the new lighted airway, Cheyenne to Billings, and the radio range from Custer have been added.

SAVANNAH. Apr. 1939. Size, 20 x 46". Located in latitude of 32°-34° north and longitude 90°-96° west, an area of about 56,000 sq. mi. At Augusta, Ga. and Columbia, S. C. radio ranges were added, and at Charleston the radio range realigned.

WICHITA. Apr. 1939. Size, 20 x 44". Located in latitude 36°-38° north and longitude 96°-102° west, an area of some 53,000 sq. mi. Includes the new radio range at Gage, the realignment of the Amarillo range and the deletion of the Canadian radio range.

YELLOWSTONE. Apr. 1939. Size, 20 x 39". Located in latitude 44°-46° north and longitude 108°-114° west, covering an area of some 47,000 sq. mi. This edition includes the addition of the Dubois and Dillon radio ranges and the radio range from Idaho Falls was realigned.

## THE 5-BILLION-DOLLAR MARKET



in the prosperous Southwest, continues to move forward progressively, successfully. Grain, minerals, cotton, cattle and oil, all essentials in today's life, are produced efficiently and profitably there.

It's only natural, therefore, that the nation's keenest salesmen are concentrating where business is good. And many of the alert ones are saving hours and days by flying Braniff.





## NORTHERN CALIF. AIR CLUB EXPANDS

**Membership Now Totals 51; Not Even a Forced Landing in Two Years**

Since its incorporation in 1937 with eight charter members, the Aviation Country Club of Northern California, Inc., now reports a membership of 51. Headquarters are in San Francisco, and the organization's activities are similar to those of a sister club in Southern California known as the Aviation Country Club of California, with headquarters in Los Angeles.

Strictly a non-profit organization, the San Francisco club has three of the "Famous Flying Fullers" as members in addition to seven doctors, two heads of aviation departments for large oil companies, two aero engineers, one astronomer, one airport owner and manager, several bond men, several active and retired capitalists. Others include salesmen, printers, miners and manufacturers.

President is Lawrence C. Ames, bond broker and a director of Lockheed Aircraft Corp.; vice president, William Clyde, distributor for Beechcraft and Luscombe; secretary-treasurer, Paul L. McMullen, building manager; and directors as follows: Jennison Heaton, Stinson distributor; L. B. Daniels, aviation and general insurance man; Michael C. Casserly, aero engineer, and Ivar Akselsen, Fairchild and Rearwin distributor.

Sec. Paul McMullen reports that events or tours are held at least once a month during the winter and twice a month during the summer. Activities include basket picnics, navigation contests, precision contests and other aerial competitions for sportsmen pilots. Trips have been made to Palm Springs, Del Monte, Bakersfield, Woodland, Boulder City, Death Valley, Sacramento and similar

## Club Insignia



This attractive insignia with the plane in red and a gold background will be found on the airplanes owned by club members.

places. In the near future trips are planned to Sonora, Santa Barbara, the big Hillman cattle ranch, Portland, Salt Lake City, Nogales and other points of interest.

During the two years there have been no accidents or forced landings. On one of the club's joint tours with the Southern California group there were 60 planes on the field at Del Monte.

### Milwaukee Ground Course

Milwaukee—A ground course, consisting of instruction in flying rules, navigation and meteorology, is being launched at Milwaukee School of Engineering, with the cooperation of Milwaukee County flying schools. The course's 18 sessions will be taught by Ed Hedeon, Racine, former Navy instructor in aviation mechanics.

### Ryan Instructor

Philip Prophet, formerly of Rutland, Vt., has been added to the ground school instructional staff at Ryan School of Aeronautics, San Diego, Cal.

## Aero Groups

St. Louis—Officers of the newly formed Meramec St. Louis chapter of the NAA are Ray Branson, honorary pres.; Fielding Coester, secy.; Glen R. Beaman, pres.; Dr. Chester J. Ball, v. p., and Ray A. Paubel, treas. Meetings will be held in the administration bldg. at Meramec Airport.

Topeka, Kan.—Members of the new Washburn College Flying Club are LeRoy Johnston, Jim Sperling, Carl Houseworth, Bill Buckles, Art Turner, Jim Sandifer, Jack Sheldon, Fritz Wasinger, Jack Wendell, Vernon Weber and Earl Richey. Chet Carr is co-owner of the plane used by the club.

Salt Lake City—Mrs. Byron Q. Van Cott has been elected president of Salt Lake City's chapter, Women's NAA, succeeding Mrs. Henry C. Hollenbeck. Other newly elected officers are Jean Neal, 1st v. p.; Mrs. Berthann Showalter, 2nd v. p.; Mrs. Alden C. Goates, recording secy.; Mrs. Julian U. Siegel, corresponding secy.; Ellen Bostrom, treas., and Mrs. Harley H. Montague, director.

### Municipal Port Leased

Jamestown, N. Y.—Mayor Harry C. Erickson has signed a contract with White Aviation Corp. of Buffalo whereby the company leases the municipal airport for four years and promises to commence the manufacture of airplanes within the next three months. Donald G. White, president of the company, has signed the contract, and in addition to manufacturing amphibian planes, expects to operate a flying school.

### Tyne Named Manager

Binghamton, N. Y.—Roger C. Tyne, secretary of the city dept. of public works, has succeeded R. W. MacPherson as secretary of the Tri-Cities airport committee and was appointed airport manager at an annual salary of \$2,000. Samuel A. Mauriello who has been in charge of the field as assistant manager for a year, will continue in that post under Tyne.

## Tennessee Will Offer Instructors' School

The Tennessee Aeronautics Bureau has announced that it will conduct an instructors' school, under the guidance of the bureau's director and the aeronautics commission, which will be available to all commercial pilots in the state who are instructing or who can show that within a reasonable length of time they will be employed as instructors. Latest information regarding instruction methods will be available and graduates will be awarded a certificate attesting their proficiency.

Another feature of Tennessee's 1939 aviation program is the apportionment of state student flight training to schools that qualify. In order to train state students, each school must be accredited by the bureau of aeronautics and must meet certain minimum requirements. At the present time, 1,870 students are enrolled in ground courses being conducted in five population centers in the state.

### "Waggler" Not Guilty

Although Judge Frank in the Baltimore City Criminal Court held that an airplane pilot who, while flying over a thickly-inhabited area of the city, made a "waggling" maneuver to enable him to see ground objects more clearly, was not guilty, the court on Apr. 12 held that the pilot was guilty of violating a provision of the state statute prohibiting flying so as to endanger persons on the surface. Reported in the *Municipal Law Journal*, it was said the pilot flew over the thickly inhabited area at a height of approximately 300 ft. Judge Frank contended that the pilot was not guilty of "acrobatics."

### Land Lease Ratified

Galveston, Tex.—The board of city commissioners has ratified a lease to the U. S. government of 15 acres of land adjacent to Municipal Airport for military purposes.

# THE GREAT NAMES IN AVIATION ARE LINKED WITH GENERAL



● The long list of General Tire purchasers is your assurance that you, too, can expect better performance from Generals.

### AIRLINES

American	Pan-American
Braniff	Pennsylvania
Chicago & Southern	Central
Condor	T.A.C.A Honduras
Inter-Island	T.W.A.

### MANUFACTURERS

Bellanca	Fairchild
Beech	Glenn L. Martin
Cessna	Piper
Chance Vought	Seversky
Curtiss-Wright	Stearman
Douglas	

### GOVERNMENT

U. S. Army	China
U. S. Navy	Hawaiian Islands
Argentina	Holland
Brazil	Philippine Islands

## GENERAL *Airplane Tires*

KNOWN 'ROUND THE WORLD FOR SAFETY!

General Tire & Rubber Co.  
AKRON, OHIO

## Management Control



Jack Frye (left), president of Transcontinental & Western Air Inc., and Paul Richter, executive vice-president, who started the predecessor company years ago which grew into TWA. Through the purchase of stock held by John Hertz and Lehman Brothers, Frye and Richter are now in control of the company of which they have long been closely identified, aided financially by their sportsman friend, Howard Hughes. "Remote control of the company has been eliminated," Mr. Frye said. "We hope and expect the arrangement will engender a unanimity of thought which will work for the betterment of TWA."

## OUR PLANES STILL BEST SAYS JOUETT

**Calls for More Research to Keep U. S.  
in Lead of World**

The United States still has the world's best airplanes despite rapid progress in aeronautical research in foreign countries, Col. John H. Jouett, president of the Aeronautical Chamber of Commerce, told 450 leading members of the aircraft and air transport industries and high government officials at the dedication of two new wind tunnels at Langley Field May 2.

"American aircraft have won worldwide acclaim for superior performance," he said. "Other nations have followed us in design and construction. With several, it has been a case of frank imitation, which, after all, is the sincerest form of flattery. We still have the world's best aircraft to meet our peculiar problems, and we do not intend to let foreign competitors gain a lead. Our manufacturers have been spending millions of dollars annually in applied research and development. We know that we have the support of the country in that policy."

Referring to the challenge created by aeronautical research abroad, Col. Jouett said: "We need the energetic support of the public and the government in making sure that we stay in the lead. First, we should strive to have other research facilities established elsewhere so that all our basic research eggs are not in one basket and therefore vulnerable to disaster from whatever source. Second, we should have increased facilities for applied industrial research and development in private laboratories."

## Army's \$7,000,000 Sacramento Air Depot Has Long Runways

Sacramento Air Depot, built to serve the western third of the U. S. and the Hawaiian and Philippine Islands, was dedicated on Apr. 29 and was under normal operation by May 1. The supply and repair base, a \$7,000,000 unit, is located 10 miles north of Sacramento, Cal. and is the home of the 4th Transport Squadron of the Air Corps' first wing.

The depot was built to replace Rockwell Field in San Diego, now used by the Navy. About 500 men have been transferred to Sacramento from San Diego. The three dock-type hangars have a span of 250 ft. in width and 200 ft. in depth. To the rear of the hangars is the shop area, which is 360 ft. wide by 1,000 ft. long. More than 500,000 sq. ft. of floor space is covered by the hangars.

The level landing field has three runways each 5,000 ft. long and 150 ft. wide. There are approximately two and one-half miles of lesser runways for smaller ships. Buildings in the quarters area cost nearly \$750,000. Engine test blocks installed are capable of handling powerplants up to and above 2,300 h.p.

Among those taking part in the dedication were Louis Johnson, asst. secy. of war; Maj. Gen. Delos C. Emmons, commanding officer, GHQ; Maj. Gen. Albert J. Bowley, commander, 9th corps area; Brig. Gen. Jacob E. Fickel, commander, 1st wing, GHQ; Gov. Culbert L. Olson of California and other officials.

## Buys TWA Stock



Howard Hughes

Whose Hughes Tool Co., of Houston, Tex., was revealed May 8 as the holder of 99,293 shares of \$5 par common stock in Transcontinental & Western Air, Inc. Jack Frye, president of TWA, issued a statement that the Hughes Tool Co. "assisted myself and my associates in the recent acquisition of the stock held by the Lehman group" which was reported in the last issue. Hughes is a close friend of Frye, is a multi-millionaire, erstwhile movie producer, round-the-world pilot and holder for a time of the world's land-plane speed record. The Dec. 31 balance sheet of TWA shows 830,846 shares were outstanding on that date.

## Pan Am Press Flight?

### Mr. Van Dusen Parries

A trans-Atlantic flight in the Boeing 314 clipper for newspaper aviation writers "represents only a fond hope of my own and has never been given official consideration," W. I. Van Dusen, public relations director for Pan American Airways, has informed members of the Aviation Writers Association. Van Dusen made the statement because he said he was "considerably concerned" over the number of inquiries from press people regarding a press flight.

"The assumption has grown into a pretty substantial belief that such a flight is being scheduled," he said. "Furthermore, that individuals are being invited to make it. Such is not the case on either point. I would like to have all the press boys understand that first, no one has been invited, and second, in any case Pan American Airways could not, with propriety, invite any individual to make such a flight."

If such a flight is made, he said, invitations would go to the managing editors or directors of wire services or syndicates inviting them to assign a staff member to cover. During the preliminary stage of trans-Atlantic flying, he added, "the superimposed load restrictions (in the interests of 'multiplied' fuel reserves) are such that comparatively few passengers could be carried."

### Willie Fly? Yes!

Willie Fly. That's the name of Pennsylvania-Central's new co-pilot for the Detroit-Washington flight. Mr. Fly, whose home is in Detroit, has 1,300 hours to his credit.

## Flying America's Largest Plane



"STANAVO" helps make aviation history again! This famous aviation fuel is chosen by Pan American Airways to power its giant new Boeing-built Clipper, now based at Treasure Island on San Francisco Bay.

For over a decade "Stanavo" Aviation Gasoline has more than kept pace with the rapid advances in aircraft design. That's why it flies with America's largest, fastest and newest planes today. Take advantage of "Stanavo's" proven performance — insist on it for your plane.



**STANAVO**  
Reg. U. S. Pat. Off.  
*Aviation Gasoline*

**STANAVO SPECIFICATION BOARD, INC.**  
225 Bush Street • San Francisco, California



## AERO RADIO INC. NAMES MOSELEY

Former Sperry Engineer Will Investigate Needs of Airlines and Seek To Set Up Standards

Aeronautical Radio Inc., radio communications agency of the nation's leading transport carriers, has launched plans to establish standards of radio apparatus used by planes and ground stations and to analyze the point-to-point communications needs of all airlines, investigating the advantages & disadvantages of both wire & radio. With the appointment of Francis L. Moseley, former member of the engineering dept. of Sperry Gyroscope Co., to the radio organization, the project was set in motion, announced Paul Goldsborough, president of Aeronautical Radio.

The survey of the wire communications facilities which can be used by airlines in their navigation and operations messages between airports is said to have considerable interest for telephone and telegraph companies. Aeronautical Radio's plan is to study the teleprinter leased wire service of the telephone company as contrasted with the teletype facilities of Western Union. It was cited that one airline (United) has found the teletype service highly advantageous because of its provision of two-way simultaneous communication.

The standardization of aviation radio equipment will have as its objective the establishment of uniform plane and ground station apparatus into a few types. This work, the organization said, projects for standardization by radio manufacturers and especially the uniform designing in planes of the proper place and layouts for the radio apparatus.

Mr. Moseley also will compile a complete record of the facilities and personnel of the airlines' radio laboratories and formulate plans to coordinate the laboratories' research to avoid duplication.

He also will study the frequencies assigned by the FCC to Aeronautical Radio to determine their most efficient use.

Mr. Moseley had been with the Sperry company since 1932 and had specialized in electronic devices manufactured by the company for aeronautical purposes. Since 1936 he has been working on aviation radio aids and was in charge of the automatic direction finder development and other apparatus. Recently he was in charge of Sperry's aircraft radio dept.



Moseley

## New Fairchild Trainer



Model M-62, a new development of Fairchild Airplane Corp. of Hagerstown, Md., a low-wing tandem-seat Ranger-powered airplane built for primary training purposes. The ship has the flight characteristics and general design of low-wing basic and advanced military airplanes, thus providing a training medium for students in the beginning stages without requiring a radical change in types of ships. Performance and equipment data have not been announced.

## State Legislation

### Bills Passed

**Michigan**—The house has passed a bill requiring a CAA certificate of airworthiness for airplanes. The bill has gone to the senate.

### Hearings

**New Hampshire**—Appearing before the house appropriations committee, proponents of a bill to provide for the establishment of a state aeronautics commission pleaded that the committee recommend an annual appropriation of not less than \$10,000 for each of the next two years in order that the state may take advantage of federal aid in development of landing fields and aeronautical facilities. The appropriation was provided for in the original bill introduced in the legislature but was discarded, along with other provisions, in a judiciary committee report sustained by the house.

### Bills Introduced

**Florida**—A house bill has been introduced to allow county commissioners to enter into contracts with the federal government for loans by pledging budgetary revenues in advance. The measure is aimed at aiding in financing Miami's proposed master airport.

**Florida**—Two bills to authorize participation of neighboring municipalities in construction & operation of Miami's proposed master airport are being considered. One is a general bill, the other local authorizing municipalities to subscribe & contribute to the creation of municipal services, specifically airports, which are established and operated in a neighboring municipality and which benefit the contributing municipality.

**Wisconsin**—Assemblyman Ben Slater (R) of Milwaukee has introduced a bill in the legislature to revamp the state's aeronautical authority. The bill would create a three-man commission in place of the present five-man board. Director of the proposed commission would have an annual salary of \$3,600. The present board has consisted of only two regular and two ex officio members since February of this year when James B. King, Milwaukee, resigned with the statement that "the board failed to carry out its responsibilities to the people of Wisconsin."

### Miscellaneous

**Wisconsin**—The Wisconsin Civil Air Corps has voiced itself as opposing a bill which would abolish a refund on the gasoline tax for aviators and use the money to set up a state director of aviation.

**Maryland**—Gov. Herbert A. O'Connor has been urged to kill a bill to limit airports in Montgomery County, opposed by the state aviation commission. Edgar Allan Poe, Jr., appeared for the commission. It was said that residents of Forestville brought about passage of the act in an attempt to eliminate a landing field in that community. Mr. Poe said the state should maintain a uniform aviation law, and that principal objection to the bill was that it may be a move toward distinct flying-field regulations for each of the 23 counties.

### Thoughtless

The screwloose maniacal souvenir hunter—bane of all aircraft accident investigators—turned up with a vengeance following the Boeing 307 accident at Alder, Wash. on Mar. 18. The Boeing company had a miniature automatic camera installed in the plane to photograph the instrument board at various points on the flight. Twelve exposures had been made before the crash. A boy near the scene of the accident stole the camera and weeks passed before police and company officials were able to trace him. When they did it was too late: the thoughtless youth had tried to open the camera without knowing how and the film was completely spoiled.

### Scherer With Gannett

John L. Scherer, president of the Airplane Pilots League which was recently organized with offices at 516 Fifth Ave., New York City, has become an aviation writer for the Gannett newspapers and co-pilot of the Lockheed 12 owned by the publisher, Frank Gannett.

### Employed by Akron Airways

Charles Hickerson who has been conducting a flying school at Franklin, Va., has been added to the personnel of Akron (O.) Airways. He has done commercial flying for 12 years in Pennsylvania and New York state. He takes the place of Harkness Davenport.

### Aviation Monument Approved

San Francisco—Erection of a monument in honor of American aviation at some park site in San Francisco has been approved by the supervisors' parks committee.

## PICK A BOEING SCHOOL MAN

Graduates of any of the 11 Career courses of Boeing School of Aeronautics (a Division of United Air Lines) are not ordinary aviation school men. They are thoroughly trained. If you need a pilot, a field passenger agent, a radio operator, an engine mechanic—or whatever—look up a Boeing man first. Send us your prospective needs. No expense to you, nor them. Make sure that you get the best personnel possible. 85% of all Boeing School-trained men are now employed—by 43 companies!

## BOEING School of Aeronautics

A DIVISION OF  
UNITED AIR LINES



3039, Hangar No. 5  
Airport, Oakland, California

In . . . months we shall probably need the following personnel.  
Please send us brief biographies of men likely to be available then.

Name . . . . . Company . . . . .

Address . . . . .

NEW AERONCA 1939

**Chief 50**

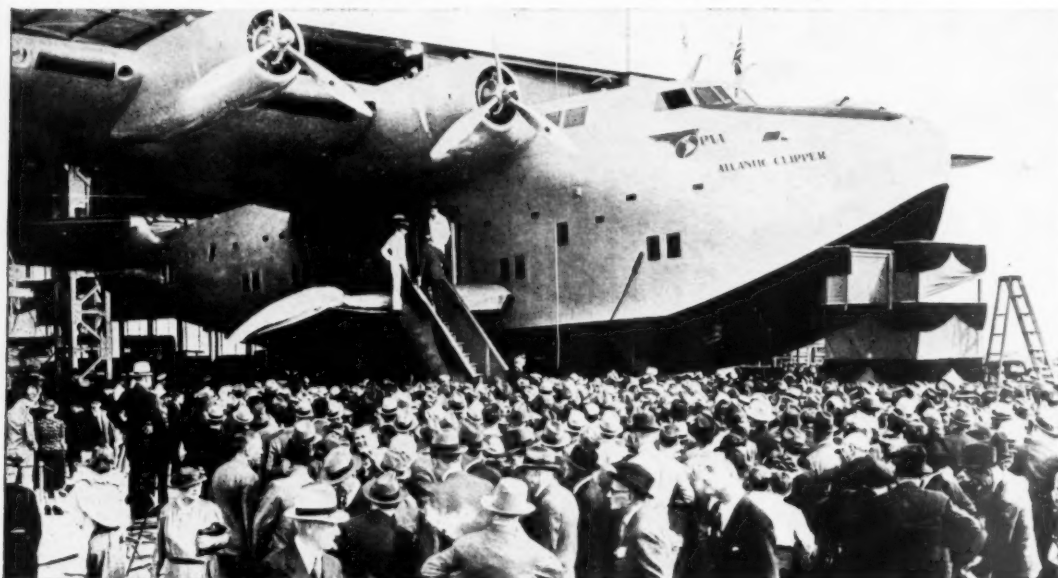
★★★★ Sensational  
PERFORMANCE AND VALUE

Tops 100 Miles an Hour  
Cruises 1½ Miles Per Minute

Send for Free Literature

Aeronautical Corp. of America  
B-11 Lunken Airport, Cincinnati, Ohio

## A New View of a Trans-Atlantic Air Conqueror



No photo we have seen previously illustrates with such power the impressive size of the Boeing 314 clipper as does this International News Photo of the christening of the Atlantic Clipper at Baltimore on

Apr. 25. Mrs. Millard Tydings, wife of the Maryland senator, cracked the traditional bottle on the nose of the giant Pan American craft.

## Moscow-NY Flight Ends 700 Mi. Short

An attempted non-stop flight from Moscow to New York ended on Miscou Island, New Brunswick, 700 miles from the goal, when Soviet airmen Brig. Gen. Vladimir Kokkinaki and Maj. Mikhail Gordienko were forced down in their red twin-engined plane, The Moscow, on Apr. 28.

Details concerning the plane were not learned, but it was said it was constructed so that failure of one engine would not necessitate landing, since a fuel-dumping arrangement had been incorporated. The flyers left Shcholkovo Airdrome, Moscow, at 8:30 p. m. Apr. 27 and progressed the first 24 hours according to plan.

Gen. Kokkinaki said lack of reliable weather information between New York and the coast of Labrador was cause of the forced landing. Both motors were damaged in the landing. It was reported that Gen. Kokkinaki fainted from lack of oxygen, and it was then that Maj. Gordienko, the navigator, took the plane and set it down on the softest spot he could find. He had been having trouble with freezing instruments and a jammed loop on the radio compass. Gen. Kokkinaki received two broken ribs, but Maj. Gordienko was unhurt. They were taken to New York on Apr. 30 in a rescue plane, following 30 hrs. of rescue work.

## Pennsylvania-Central Celebrates



It was a gala day for Pennsylvania-Central Airlines on Apr. 26th—at least in Washington, D. C. The company's 12th birthday anniversary was celebrated with Jessica Dragonette, noted radio songstress, cutting a birthday cake with a propeller blade and serving generous pieces to Robert H. Hinckley (left), chairman of the Civil Aeronautics Authority, and Charles P. Graddick (right), superintendent of the air mail service of the Post Office Dept. The ceremony was arranged by Don Duff, PCA's live-wire district traffic manager for the capital.

## Aero Groups Get Building

Omaha—The city of Omaha has made available a two-story building at Municipal Airport for the Aeronautical Association of Omaha for use as a clubhouse and recreation center. The association agreed to decorate the building and bear all expenses. It will be used also by the Omaha chapter of the NAA and the 99ers.

## TVA Port Manager Named

Odell Garrison assumed duties as manager of the Tennessee Valley Authority Muscle Shoals City Airport on May 1. Garrison left his home in Birmingham, Ala. to make his new home at Florence, Ala. where he will take charge of Southern Airways Aviation School which will be established at the airport.

## Canada's Fast Warplane

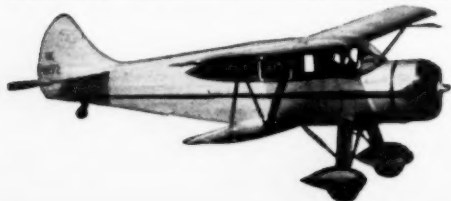


This is the FDB-1 fighter and dive bomber, said to be the first military plane developed in the Dominion of Canada, being flown by Test Pilot George Ayde of Canadian Car & Foundry Co., Montreal. The company's chief engineer, Michael Gregor, designed the plane, which is powered by a 750-hp. Pratt & Whitney Wasp Junior. In tests, the plane exceeded 300 mph. at less than full throttle, and has climbed to a height of 25,000 ft. According to one official, it was hitting 575 mph. at the end of one of its power dives. (International News Photo).

## Lockheed Aircraft Plant



Recent aerial view of the extensive plant of the Lockheed Aircraft Corp. at Burbank, Cal., builders of transport airplanes for many airlines of the world and currently fulfilling a larger order of bombers for the British Air Ministry.



## IT'S GOOD BUSINESS TO OWN A WACO

● It's good business to make your business trips in your own airplane. You'll save hours each day—days each week. And you'll get more attention when you fly to your appointments.

It's particularly good business to own a WACO—for Wacos are today's greatest airplane values. See your local dealer for prices, terms, and information on full-coverage insurance at 9% percent.



THE WACO AIRCRAFT

COMPANY, TROY, OHIO



## STUDENT HANDBOOK

## Authority Publishes Pointers for Private Pilots and Students

For the use of private pilots and students qualifying for solo and private certificates under the CAA's vocational flight training program, the Authority has published a 50-page handbook which constitutes a digest of information with which a student must be thoroughly familiar in order to pass solo and private flying certificate tests.

"This is the first time that such pertinent material has been segregated from the mass of data contained in the complete Civil Air Regulations and is the initial step in the Authority's plan to present the regulations in simplified form to the aviation fraternity," the CAA's announcement said. "Heretofore it has been necessary for a student pilot to separate for himself those chapters and paragraphs applicable to private flyers."

Persons desiring copies of the digest should write to the publications and statistics division, Civil Aeronautics Authority, Garfield Bldg., Washington, D. C. The CAA has printed 10,000 copies, and there is no charge for the handbook, which is entitled "Digest of Regulations for Solo and Private Pilots Certificates."

## Virginia Port Licensed

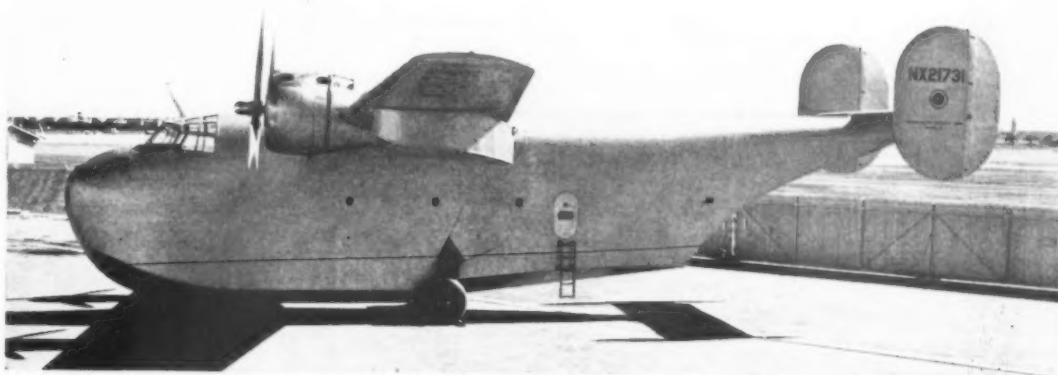
A license has been granted Ashland (Va.) airport by the state corporation commission, div. of aeronautics. Field has one landing strip, n/s, 2,200 ft. long and 200 ft. wide.

## Cessna President



Dwane L. Wallace president of Cessna Aircraft Co., Wichita, Kan., which is bringing out a twin-engined airplane to supplement its well known single-engined line.

## A New 52-Passenger Consolidated Flying Boat Takes to the Air



Model 31, a private company venture built for commercial and military sale and reputed to be capable of high speeds for flying boat types of airplanes.

## Consolidated Is Flight-Testing Its New 50,000-Pound Flying Boat

A new twin-engined flying boat built by Consolidated Aircraft Corp. of San Diego, on speculation as a private company venture, made its debut and began trial flights early in May. Incorporating many new features into design and construction, the model 31, as it has been called, is suitable for both commercial and military purposes.

Although the company released no performance data, model 31 is understood to be unusually fast in the air and is powered by two Wright 18-cylinder twin-row radial engines, each rated at 2,000 h.p. for take-off, and the most powerful engines to be placed into use on a commercial project.

Approximate gross weight is given as 50,000 pounds, somewhat less than earlier reports indicated. Two 16-inch diameter, three-blade Hamilton Standard Hydromatic full-feathering propellers are among the equipment. A crew of five will operate the ship, a pilot, co-pilot, flight engineer, radio operator and navigator.

Wing span is 110 feet, overall length 73 feet, height 22 feet and maximum wing chord 14 feet. No armament has been installed. The boat is constructed of aluminum coated aluminum alloy skin internally reinforced with longitudinal stiffeners and transverse bulkheads and frames.

The wings, tail surfaces and the planing surface of the hull bottom are flush riveted.

The wing is full-cantilever type with fuel tanks in the center section. Flaps are hydraulically operated Fowler type extending from the inboard side of the aileron to the hull. Outboard floats retract to underside of outer wing panel, the wing tips being too small to permit retraction at the tip as is done on the Consolidated PB's. Ailerons and flaps are fabric covered. Tail surfaces have full cantilever stabilizer with twin fins and rudders, the rudders & elevators being fabric covered.

There are two full decks, one above the other, providing a large flight con-

trol compartment and eight additional large compartments.

The beaching gear is hydraulically operated retractable tricycle type. The nose wheel is housed in a well in the bottom of the hull and the side wheels swing upward into wells in the side of the hull. The side wheels are removable as well as retractable. The nose wheel well and side wheel wells are completely enclosed by doors for maximum efficiency in flight.

As a commercial airliner model 31 has a maximum capacity of 52 passengers for day operations and 28 passengers (sleeper) for night operations. The company maintains that for trans-Atlantic operations the airplane has accommodations for 28 passengers but no performance data has been released. As a military airplane model 31 would augment the well-known series of PB's bombing patrol boats built for the Navy, exceeding the

## TWA First

Although American Airlines has been more closely identified with North Beach Airport in New York City than any of its contemporaries, it was TWA that landed the first transport on the field Apr. 29. Just how TWA managed to squeeze in first is not known, but Capt. O. M. Grove and First Officer H. G. Shafer were the pilots, and chief observer of the landing was none other than Lieut. Col. Brehon B. Somervell, local WPA administrator. Landing was made on a completed section of the n/s runway.

PB's in speed and load capacity by a substantial margin.

The company states that although the ship was built on speculation, the Navy Department "was cognizant of the construction." Only 10 months were required for the design and construction, the company said. American Export Airlines is considered a possible purchaser of the model.

## First BC-2 to Air Corps



The first of three BC-2 basic combat planes, made by North American Aviation, Inc., Inglewood, Cal., has been delivered to the Army Air Corps at Wright Field. Powered with a single-row Pratt & Whitney engine, the plane carries a crew consisting of pilot and gunner-observer. Approximate wing span is 43 ft.; length, 23 ft. Wings are all-metal construction and fuselage is fabric-covered welded tubular steel. One fixed machine gun fires forward, and one flexible is mounted in the rear cockpit. The basic combat type is said to be necessary because of the high performance of modern combat planes and is used as a step-up between the basic trainer used by cadets at Randolph Field and combat planes with which tactical units are provided. (Official photo, U. S. Army Air Corps.)

SUNCOOK MILLS  
LEADING MANUFACTURERS  
OF FABRIC AND  
TAPES FOR THE  
AIRCRAFT INDUSTRY



# FLIGHTEX



40 WORTH STREET, NEW YORK  
Export Representative—  
Aviation Equipment & Export,  
Inc., 25 Beaver St., N. Y.  
Cable Address—"Aviquipa"

WORLD'S PREMIER FLIGHTEX FABRIC AIRPLANE FABRIC

# AMERICAN AVIATION

*The Independent Voice of American Aeronautics*

Published the 1st and 15th of each month

WAYNE W. PARRISH ..... Editor  
ALBERT H. STACKPOLE ..... Associate Editor  
ROBERT H. WOOD ..... Assistant to the Editor  
ERIC BRAMLEY ..... News Editor  
GEORGE N. SHUMWAY ..... Assistant News Editor  
JOHN T. SHANNON ..... Advertising Manager  
F. G. KNIGHT ..... Circulation Manager

Editorial and Business Office  
Earle Building, Washington, D. C.

Published by American Aviation Associates, Inc., Wayne W. Parrish,  
President; Albert H. Stackpole, Vice-President and Edward J. Stackpole, Jr.,  
Secretary-Treasurer, 104 Telegraph Building, Harrisburg, Pa.

Subscription Rates—\$3.00 per year—15 cents per copy.

Canada—\$3.50, all other foreign—\$4.00.

Permission to reprint is granted where credit to AMERICAN AVIATION is given.

Entered as second class matter at Washington, D. C., with additional  
entry at Harrisburg, Pa.

AMERICAN AVIATION DAILY: Published six days each week except holi-  
days, dispatched by air mail. A confidential news letter covering daily  
developments in aviation and the national capital. \$15 per month, \$180  
per year. Service Bureau available to all subscribers. Special telephone  
District 1681.

## Management Control

THE purchase by Jack Frye and associates of the stock in Transcontinental & Western Air, Inc., is not only a dramatic story in itself but is a healthy and constructive move for the industry in assuring "management control" for one of the nation's most important airlines. That Jack Frye and Paul Richter again find themselves in control of a large company which they began virtually on a shoestring years ago and which has passed respectively through the control of a railroad, a large automobile combine and a large financial and banking house, is a remarkable history not often duplicated in this day and age. It must be a source of immense personal satisfaction to these men and we join a great many others in wishing them complete success in the further up-building of their airline. To have Howard Hughes as a partner augurs well for the future of the company.

At the same time we are sorry to see T. B. Wilson leave the aviation picture so soon after his entry into air transportation as chairman of the TWA board. We hope he will not remain out of aviation for long. In the short time he was with the company he made many friends, particularly in Washington. Although his background has been almost exclusively with bus and steamship transportation, it did not take him long to grasp many of the fundamental problems of air transport. Knowing that he leaves TWA in the most friendly and cordial spirit possible, we wish him success in whatever enterprise he may undertake.

## No Longer a Step-Child

FOR A LONG time the airport section of the old Bureau of Air Commerce was a step-child. It was kicked and pushed around, deprived of regular departmental funds and made to subsist on relief money. Members of the section were looked upon as unwanted vagrants who had to be tolerated only if necessary. Even when the Civil Aeronautics Authority was created the airport section remained far in the background as a minor and relatively unimportant function. There are many of the high officials even today who have no conception of the importance of the airport work and the need for integration within the major CAA structure. Even today the airport section is nursed by WPA and not by regular appropriations.

But as time goes on the battered and harassed airport section is gradually finding a more kindly reception in the higher and more holy sanctums of the Authority. For the fiscal year 1940 the section actually has \$164,000 of regular CAA appropriations for its own use. At least this is recognition that its function is a part of the Authority's activities. In addition the President has recommended that \$250,000 of WPA funds be earmarked for the airport section, making a total of \$414,000 for next year's operations. This year it has had \$325,000, so the outlook is much brighter. We predict the time will come when the airport section will become a division and later on will be either a bureau in itself or

an important part of an existing bureau. Airports have not had the recognition they deserve from either the old Bureau of Air Commerce or the CAA, an unfortunate situation which can be attributed largely to lack of understanding and appreciation of the factors involved.

And while we are on the subject of airports we are pleased to note that the airport section has prepared a summary of state airport zoning legislation and plans to pursue this survey further to include legislation on airport approaches. This has been a sadly needed job, a job which only a federal agency can accomplish. We recommend that a bulletin be prepared giving the complete picture of all state legislation on airports and all other aviation subjects and as many municipal and county statutes as can be obtained. Zoning is an extremely important matter and it is regrettable that until this current survey was prepared there has been so little available information on the subject.

## They Never Learn

## Pilot Gives Life to Save Children

Son of Former Rep. Crump  
Memphis Political Boss  
Among Three Killed

GRENADA, Miss., May 2 (U.P.). A heroic pilot and his two flying companions burned to death here this afternoon when he crashed his Cessna monoplane to avoid hitting some children who ran onto the flying field as the ship landed.

The dead were:

John Crump, son of former Tennessee Representative E. H. Crump, now a Memphis political leader.

George Stokes, Memphis Commercial Appeal, pilot.

Ted Northington, reporter for the same paper.

Plane Owned by Paper

The ship was owned by the Memphis Commercial Appeal, morning newspaper, and was one of five planes touring the South today boosting the Memphis Cotton Carnival, which opens next week.

More than 500 persons, including the mayor of Grenada and a welcoming committee .....

Executives could well make the protection of landing areas (by signs and fences) a worthy plank in its program. We hate to disturb the slumbers of the National Aeronautic Association with something practical, but this organization with its numerous chapters could aid in a safety drive. Lives need not be needlessly lost in this manner with proper care.

## Strange But True

We've heard plenty of "believe it or not" facts about aviation but here's one for the books that has been overlooked by the industry's most fabulous fancier of strange facts, Bill Van Dusen. What's more this happened on Mr. Van Dusen's own Pan American Airways. Teller of the true story is Wellwood Beall the genial Boeing designer who dreamed and conceived the Boeing 314 clipper.

Beall was a passenger on the first Boeing clipper trip to Hong Kong. During one of the island hops the first officer came down to the cabins looking for the third officer who was at that moment 20 minutes late reporting for duty in the control room. The first officer had searched the bunks, had searched the cargo compartments, and was searching the passenger cabins. The third officer couldn't be found. At a loss to know where to look next the first officer asked Beall. Together the two crossed off all possible places on the huge ship where the third officer might be. There was only one place that hadn't been searched and that was the wings. There the third officer was found in one of the engine nacelles intently studying a part of the mechanism which had attracted him. It seems that he was accustomed to touring the ship before going on duty and had forgotten to watch the time.

Believe it or not, but from then on each member of the control room

THE adjoining news story hardly needs any accompanying moral. It is another tragic evidence of thoughtlessness, ignorance and carelessness. Three good men died because children "ran onto the flying field." It isn't the first time this has happened. It probably won't be the last. But here is one type of accident so needless and so easily possible to eradicate.

Airport managers who do not take steps to keep onlookers off the flying field are guilty of gross negligence. We know nothing more of the Grenada incident than we have read in the newspapers, but every field, large or small, should have warning signs prominently displayed. All landing areas should be protected against invasion by automobiles or spectators.

Not so long ago a girl in South Carolina was seriously injured when she swerved her plane on landing to avoid hitting children. Trucks or autos have caused more than one accident. Here is a safety problem which the Air Safety Board and the Civil Aeronautics Authority can undertake without delay. The American Association of Airport



crew had to sign out on the bulletin board whenever leaving the room and to state where he was going. All of which gives one some idea of the enormous size of today's flying boats. The clipper is like an ocean liner. It's easy for the publicity hounds to write stories about getting "lost" on a modern airplane but here was an actual instance. One wonders if aviation's dreamers of 20 years ago actually thought that in 1939 it would be necessary for crew members to sign out and state where they would be if called upon for extra duty.

## Pro, Con and Otherwise

### Ratio of 50 to 5

April 28, 1939

To the Editor:

I was quite interested in your editorial in the April 15 issue regarding comparative treatment by newspapers of air and ground accidents. The case you mentioned (Braniff) of eight killed by airplane vs. eight killed by bus, struck me at the time. I saved the paper and have been using it in my various talks. In our paper, Braniff got 43 3/4 column inches, including a photo and black column inches. The bus passengers averaged, therefore, one-half inch per person killed while the airliner averaged five and one-half inches per person. That figures out at the rate of five lines per bus passenger and fifty lines per air passenger.

Charles L. Morris  
Commissioner of Aeronautics  
State of Connecticut

### Graduate Joins Bell

Following his recent graduation from Case Jones School of Aeronautics at Newark, Lawrence L. Baker, Brooklyn, has joined Bell Aircraft Corp. in Buffalo.

## Obituary

HARVEY MUMMERT, 47, vice-president and chief engineer of Mercury Aircraft Co. Inc., Hammondsport, N. Y., died May 3. He had served as an engineer for Curtiss Aeroplane Div., Buffalo. In 1922 Mr. Mummert designed the Mummert, then said to be the world's smallest plane. He designed the Aerial Mercury in 1925, a biplane intended for night airmail service. Mr. Mummert won third place in the National Air Tour of 4,000 miles in 1927 for the Edsel Ford Trophy.

## Italy, Germany Invade U.S. Aircraft Market in Latin America

Italy and Germany have made serious inroads into U. S. aircraft markets in Latin America, according to the Civil Aeronautics Authority, which has just completed a study of U. S. aeronautical exports in 1938.

The Orient represented the principal customers of American aeronautical products during 1938, the CAA states. Of the total amount of aircraft and aircraft accessories exported last year, 41% (shipments valued close to \$28,500,000) went to the Far East, as against 19%, or \$12,600,000, to Latin America. German and Italian shipments of aircraft to Chile, Paraguay, Peru and Brazil in 1938 totaled \$6,400,000, more than 50% of all the Latin American trade secured by U. S. exporters during this period. Chile alone imported German and Italian aircraft last year worth 54 times the value of their purchases from the U. S.

In 1938, American exports of aeronautical products to Chile were valued at \$64,331, as compared with nearly \$2,300,000 from Germany and \$1,200,000 from Italy. Paraguay purchased aircraft from Italy in the amount of \$1,000,000, and \$6,162 from the U. S. The Peruvian market amounted to more than 3 1/2 times the value of equipment purchased from this country. American exports to Peru were reported worth \$223,490 against \$811,355 from Italy. Argentina and Brazil remain the best U. S. customers in South America, shipments to the former reaching \$6,200,000 in 1938 and \$2,000,000 to the latter.

Japan was the leading aircraft market during 1938 for both American and German equipment. U. S. exports to Japan increased from \$989,100 in 1936 to \$2,500,000 in 1937, rising to an all-time high of \$11,000,000 in 1938. German aircraft exports to Japan increased from about \$943,092 in 1937 to \$3,100,000 in 1938.

Foreign aircraft shipments from all the principal producing countries throughout the world last year were valued at approximately \$150,000,000 as compared with \$82,200,000 in 1937, an increase of 73%. Combined value of exports from the U. S., the United Kingdom and Germany last year equalled about 82% of the total international trade in aircraft.

## Aero Library

AIRPORTS AND AIRPLANES AND THE LEGAL PROBLEMS THEY CREATE FOR CITIES. Report No. 42. Published by the National Institute of Municipal Law Officers, 730 Jackson Place, Washington, D. C. \$1.00

Here is a volume that can be highly recommended to all those concerned with airports, airport zoning, municipal and state regulation, and general legal problems relating to municipally owned airports. It was prepared by John A. McIntire, executive director of the National Institute of Municipal Law Officers, and Charles S. Rhyne, attorney, in cooperation with the U. S. Conference of Mayors.

Much of the data was obtained from questionnaires sent to all city attorneys and not the least important feature is a model ordinance regulating operation of aircraft over cities. Existing ordinances are published from Atlantic City, Buffalo, Chattanooga, Columbus, O., El Paso, Madison, Wis., Newark, Norfolk, Spokane, and Springfield, Mo. A model statute is also suggested for the protection of airport approaches and both state statutes and municipal ordinances are published to give a representative view of laws already on the statute books.

There is also a considerable amount of material on acquisition and location of municipal airports, operation of municipal airports, and suggestions on the protection of approaches. This is apparently the only compilation of its kind ever made and should be exceedingly useful.

AERONAUTIC RADIO by Myron F. Eddy. 500 pp. Ronald Press Co., New York. \$4.50.

This is a manual for operators, pilots and radio mechanics but is not recommended for the more experienced engineer who would probably find the discourse too elementary. It is a valuable book, however, for students, beginners and those who want to refresh their minds about all phases of aeronautical radio.

The author is a lieutenant in the U. S. Navy, retired; a chief instructor in aircraft radio at the Stewart Technical School, and a member of the Institute of Radio Engineers.

The book is a compilation of present day aeronautical radio practice with practically no formula. Its chief purpose is to acquaint the reader with fundamental principles of aviation radio both for communication and navigation. A chapter on radio electricity and radio have been included to help those who want to know about transmitting and receiving types used in aviation. The book is well illustrated and the circuit drawings are easily read and suitable for use in connection with Federal Communications Commission examinations for operators licenses.

### Force to Be Enlarged

It was announced from Shreveport, La. that the Army third-wing air force stationed at Barksdale Field soon would be enlarged from 1,850 officers and enlisted men to 3,385. Now composed of pursuit and attack units, the wing will be made exclusively a bombardment unit. The 20th pursuit group, now at Barksdale, will be moved to March Field in California.

### Heavy With Pictures

Ryan School of Aeronautics, San Diego, Cal., has issued a 32-page catalog, "New Horizons for Youth—Life at Ryan." Booklet contains nearly 120 photos.

# FAIR to FAIR

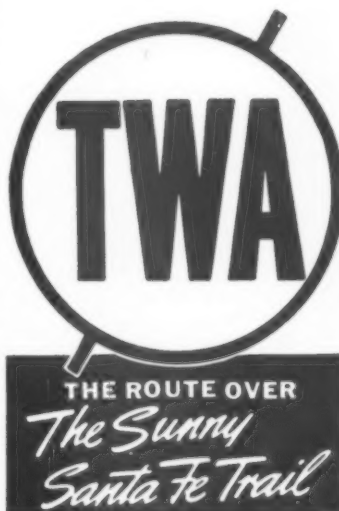
## ONLY TWA FLIES DIRECT VIA GRAND CANYON



BEAUTIFUL GRAND CANYON

YOU SEE MORE THAN 100 MILES OF IT—On your next trip to or from the Pacific Coast, fly TWA over Grand Canyon and Boulder Dam. Fly TWA—shortest, fastest coast to coast route.

Call Your Travel Agent or  
**TRANSCONTINENTAL & WESTERN AIR, INC.**



## ★ NEXT STOP ★ LOS ANGELES

And the favorite stopping place of air-minded travelers...The BILTMORE Hotel. The social center of the Southland...Western Americas' largest, finest hotel.

Here, you are never up in the air for service... but always aware the Biltmore is as modern as aviation.

**CENTRALLY LOCATED  
IN TRANSPORTATION CIRCLE**

**RADIO COLLECT  
for Reservations**



**The BILTMORE Hotel**  
DOWNTOWN LOS ANGELES

## THE C.A.A. RECORD

(Applications, Hearings, Dockets)

### APPLICATIONS

#### Northwest Asks New Route

Northwest Airlines on May 1 filed application with the CAA for a certificate of convenience and necessity to carry mail, passengers and express on a route from Milwaukee to Marquette, Mich., via Fond du Lac, Appleton, Green Bay, Marinette-Menominee and Escanaba. One round trip daily with Lockheed 10-A equipment is planned. The application shows that NWA expects the following net profits from the first five years of operations: \$26,559, \$23,904, \$21,309, \$18,895 and \$16,481, respectively. Between June 30, 1933 and Mar. 31, 1939, Northwest lost \$453,264.77, the application states.

#### Continental Rate Application

Application for the setting of 39c per airplane mile as the fair and reasonable mail rate on the Wichita-Pueblo route was filed by Continental Airlines on Apr. 29. The company wishes the rate to apply on 100 lbs. of mail, or fraction thereof, plus 2.5% of such rate for each additional 25 lbs. The Mid-Continent rate decision applied on 300 lbs., but Continental feels that inasmuch as its average loads are seldom over 100 lbs., a 100-lb. provision may give the company an opportunity to earn extra compensation through payments for additional poundage. Continental believes 39c to be fair and reasonable because it will "insure the performance of the service and together with other revenues received by the petitioner from this route, will enable it under honest, efficient and economical management to operate the aforesaid service and to maintain and continue the development of air transportation to the extent and of the character and quality required for the commerce of the U. S., the postal service and the national defense." Because of the fact that the route has not been flown and because traffic is as yet undeveloped, the carrier will be faced with the problems of expenses incident to the establishment of a new service, Continental's application pointed out.

### HEARINGS

#### UAL-WAE Sleeper Exchange Hearing

Hearing was held beginning May 8 on application of United Air Lines and Western Air Express for permission to interchange sleeper equipment at Salt Lake City. Complete story on this page.

#### Boston-Maine's Short Rate Hearing

The Boston-Maine rate hearing, the shortest proceeding held by the CAA to date, concluded after meeting for less than two hours on May 8. All pertinent data was submitted to the Authority in exhibits and the only witness presented by the company was Samuel J. Solomon, vice president. Boston-Maine now receives 33 1/3c per mile on base mileage of 38,500 on AM27, Boston-Caribou, Boston-Montreal, and is requesting 42c per mile with base mileage of 60,000. In 1938, Boston-Maine lost \$10,625.36, and in the first two months of 1939 lost \$12,619.45. Increased operating costs make additional mail pay necessary, the company maintains. William A. Cole appeared as attorney for the applicant, and John Curry, special counsel, represented the CAA's economic compliance division.

#### United Air Lines Rate Hearing

The CAA on Apr. 24-28 held hearing on United Air Lines' application for payment of mail compensation on a pound-mile basis. Complete details on page 17.

#### Pan American Oral Argument

Oral argument on pertinent points involved in the application of Pan American Airways for a trans-Atlantic certificate of convenience and necessity, setting of a mail rate for the route, and adjustment of mail pay on the Bermuda line was held before CAA members Harlee Branch, G. Grant Mason, Jr., and Oswald Ryan on May 2. Henry J. Friendly represented Pan Am and Samuel E. Gates, chief of the international division, appeared in behalf of the CAA's economic compliance division.

Friendly told the CAA that a substantial amount of government aid is necessary for the trans-Atlantic service, and added that exhibits submitted by Gates, showing that, on a basis of one trip per week, each passenger would cost the government \$2,060 in subsidy, presented an "extremely distorted picture." The government aid, Friendly maintained, is for the entire service and not any particular portion of it. Discussing schedules, he stated that four round trips per week will allow maximum efficiency and economy and will be warranted by available passenger traffic. Pan Am never has been interested in the Bermuda route as a separate service but only in connection with trans-Atlantic operations, he added. Friendly also disputed CAA exhibits which showed that \$1,000,000 additional revenue per year would accrue to PAA if all trans-Atlantic flights operated via Bermuda. The maximum increase "on paper" would be \$230,000, he said.

Gates, in discussing the amount of government aid which Pan Am should receive, stated that it could be determined in three ways: a return should be allowed only on that portion of the carrier's investment which is used and useful in the carriage of mail; a return should be allowed on the total investment, or a course between these two methods should be followed. Indicating that he favored the latter course, Gates stated that Pan Am could be allowed sufficient government aid to break even, plus an additional amount for the "development of air transportation." Furnishing PAA with a 10% return on its entire investment is not proper, he said.

Certain readjustments in PAA's extension and development account, on which the company claims a return, were also suggested by Gates. According to PAA exhibits, this account totaled \$2,044,802.10 as of Apr. 30, 1939. By deducting items such as losses on a Boston-Halifax route in 1931, a \$55,000 Iceland agreement which has expired, Atlantic coast survey trips in 1936, and numerous other items, Gates reduced the account to \$736,987.56. Also, by an adjustment of revenues and expenses, he claimed that the following amounts of outboard U. S. mail pay will be necessary per year (PAA estimates in parentheses): one trip per week, \$1,408,236 (\$2,738,940); two trips, \$1,927,116 (\$3,819,444); three trips, \$2,315,916 (\$4,390,392) and four trips, \$2,644,596 (\$4,711,332). No return on past losses of the carrier should be allowed, Gates told the CAA. He also stated that only one terminal should be named in the U. S., with PAA being allowed to use other ports in emergencies.

On rebuttal, Friendly said that not only mail, but "air transportation" should be considered in fixing a rate of return. Air transportation, he pointed out, includes mail, passengers and express. A mail rate which enabled the carrier to do little more than break even would offer no means of attracting outside capital, he said.

### CERTIFICATES ISSUED

#### Continental Gets Wichita-Pueblo Certificate

Continental Airlines on Apr. 28 was awarded a certificate of convenience and necessity on the route from Wichita to Pueblo via Hutchinson, Dodge City, Garden City and La Junta. Continental and Braniff were the two applicants for the route, and CAA Examiners C. Edward Leasure and F. W. Brown recommended that it be awarded to the former.

#### Penn-Central Gets Certificates

The CAA on Apr. 29 issued certificates of convenience and necessity to Pennsylvania-Central Airlines for the carriage of mail, passengers and express on AM4, Norfolk-Detroit, via Washington, Pittsburgh, Akron, Cleveland; AM32, Detroit-Milwaukee, via Flint, Lansing, Grand Rapids and Muskegon and between Grand Rapids and Chicago; AM34, Washington-Buffalo, via Baltimore, Harrisburg and Williamsport, and AM41, Detroit-Sault Ste. Marie, via Flint, Saginaw-Bay City, Traverse City and Sheboygan. Passenger-express certificates were awarded to PCA on routes from Buffalo to Pittsburgh, and Pittsburgh to Baltimore. The stop at Flint on AM32 also is for passengers and express only.

### Calendar of Hearings

May 15—Continental Air Lines, application for determination of a mail rate on Wichita-Pueblo route. Hearing at Carlton Hotel, Washington, before CAA Examiner C. Edward Leasure.

May 15—Pan American Airways, Panama Airways (PAA), Uraba, Medellin & Central Airways (PAA), certificates on convenience and necessity.

May 22—Pan American-Grace Airways, certificates of convenience and necessity.

## Hearing Held on Proposed UAL-WAE Sleeper Interchange at Salt Lake

Hearing was held beginning Mar. 8 on the application of United Air Lines and Western Air Express for permission to interchange sleeper equipment at Salt Lake City, enabling the carriers to operate through sleeper service from Los Angeles to Newark without a change of planes at Salt Lake. CAA Examiner F. W. Brown presided at the hearing, which was held at the Carlton Hotel, Washington.

TWA, represented by Gerald Brophy, counsel, appeared as intervenor protesting against the granting of the application on the grounds that such interchange would be an unfair and deceptive practice and contrary to the Civil Aeronautics Act.

Witnesses presented by Paul Godehn, UAL attorney, included Paul M. Willcox, secretary and assistant to the president of United; Ray W. Ireland, UAL traffic manager, and Alvin P. Adams, president of Western Air Express. Willcox testified that UAL and WAE contemplate operating two interchange schedules in each direction, and pointed out that UAL has made connections with WAE at Salt Lake City for mail, passengers and express since July 1, 1927. UAL owns nine DST sleepers and WAE two. Under the proposed agreement, only one or two of UAL's sleepers will be in WAE's possession at the same time, under ordinary scheduled operations. Willcox said, adding that UAL will not directly or indirectly control WAE.

Upon cross-examination, Willcox explained that neither party will charge the other for depreciation of airplanes, explaining that depreciation continues whether planes are flown or are in a hangar. Previous contracts submitted

to the Post Office carried such a charge. There are definite charges in the agreement for rental of engines, propellers and plane-engine overhaul. Willcox stated. Brophy charged that if more than two daily round trips were operated without WAE furnishing any additional equipment, UAL would be "subsidizing" an operation over WAE's route, because of the lack of a depreciation charge. Such a situation would be unlikely, Willcox said, because under such conditions the agreement could be terminated under the 30-day cancellation clause. He admitted that the proposed service might detract some passengers from TWA.

Ireland told Examiner Brown that UAL's present trip 9 from Newark arrives in Salt Lake at 5:22 a. m. and that Los Angeles-bound passengers must be awakened before 5:00 a. m. in order to change to a WAE plane. The value of the trip would be destroyed by a later departure from Newark, because passengers would then arrive in Los Angeles at noon, half way through the business day, he said. On trip 4 eastbound passengers must change planes at midnight, he added.

UAL's eastbound passengers from Los Angeles to various points on its line increased in the first four months of 1939 as compared with a similar 1938 period, but westbound passengers decreased, Ireland said, attributing the decrease to the 5:00 a. m. change of planes at Salt Lake City. Brophy answered this by claiming that the natural traffic flow over the line is to the east. Objection by Brophy blocked attempts of Godehn to show that interchange of equipment is allowed on U. S. railroads.

### JAYCEES TO MEET

#### Three Trophies to Be Awarded for Aviation Activities

Three trophies will be awarded to outstanding work in the advancement of aviation during the past year at the 20th annual convention of the U. S. Junior Chamber of Commerce in Tulsa June 21-24, according to J. Felton Turner, of Oakland, Cal., chairman of the aviation committee. "Although we have left much work undone, this year does represent one of substantial accomplishment by our committee," he said. "Many fine projects have been handled successfully by local aviation committees during the year."

Turner distributed to local committees copies of a project manual listing activities suggested by various local chairmen. These projects include local programs, development of civic interest in local airports, airport marking, model aircraft activity and legislation.

### Pilot Joins Flying Service

Chester Pickard, a transport pilot with 12 years' experience, has been named chief pilot and assistant manager of Clawson Flying Service, Utica (N. Y.) airport.

### A Full House

So many officers and employees of United Air Lines were in Washington for the company's CAA rate hearing on Apr. 24-28 that they occupied almost half a floor at the Carlton Hotel. The hearing was generally conceded to be one of the best-handled proceedings to date, showing long and thorough preparation by the applicant. Exhibits were given to CAA analysts long in advance and cross-examination was materially shortened. On three of the four days the Authority sat only in the afternoon and on the last day, met for half an hour. In a total of approximately 17 hours, Paul Godehn, United's attorney, presented 15 witnesses.



## CAA Hears United Air Lines Ask Mail Pay on Pound-Mile Basis

First Proceeding Involving New Method of Compensation; Company  
Expects to Lose \$795,500 in 1939 With Present  
Airplane-Mile Rates

United Air Lines' hearing on its application for payment of mail compensation on a pound-mile basis instead of per airplane-mile was held before CAA members Harlee Branch, G. Grant Mason, Jr., and Oswald Ryan on Apr. 24-28. It was the first proceeding involving a pound-mile application heard by the Authority to date.

Amounts requested by United were 1.08 mills per pound-mile on AM1, Newark-San Francisco; 2.46 mills on AM11, Seattle-San Diego; 2.16 mills on AM12, Salt Lake City-Spokane, and 1.04 mills on AM17, Cheyenne-Denver. If the Authority desires to set one rate for the entire system, United states that 1.32 mills would be reasonable. At present the company receives 31¢ per airplane-mile on AM1, 27¢ on AM11, 33 1/3¢ on AM12 and 29¢ on AM17.

Payment of 1.32 mills per pound-mile would almost double the company's yearly mail payments, which totaled \$3,505,136.85 in 1938. During that year, United received \$1.45 per ton-mile, or approximately 7/10 of a mill per pound-mile for transporting mail. In 1938, United states it carried 32.3% of the total air mail but received only 23.1% of the pay.

Principal witness presented at the hearing by Paul Godehn, UAL attorney, was W. A. Patterson, president of the company. A pound-mile rate, Patterson told the Authority, assures the carrier of being paid in proportion to work done. Such payment also will correct existing inequities, eliminate the credit trip evil, allow a simplification of accounting procedures and abolish the average load theory, he said. Patterson stated that the airlines are selling pounds of service and determine their costs on a ton-mile basis.

Estimates submitted at the hearing showed that United expects to lose approximately \$795,500 during 1939 if its present mail rates remain in effect. Total operating revenues will be \$10,633,000 (passengers, \$6,483,000; mail, \$3,505,000; express, \$480,000 and miscellaneous, \$165,000) against expenses of \$11,428,500. United estimates that it will fly 127,000,000 revenue passenger-miles and 16,152,000 revenue airplane miles in 1939. The company's loss from Aug. 22, 1938 to Mar. 31, 1939 was \$638,000. Air transportation now has 10% of its potential market and is penetrating that market at a rate of 1.3% per year, Patterson testified.

Traffic expenses, excluding advertising and commissions on tickets sold, are estimated at \$668,000 for 1939, against \$580,000 in 1938. Additional personnel in the vice president's office will cost \$20,000 and there will be a \$45,000 increase in advertising during 1939.

John Curry, Washington attorney, acting as special counsel for the CAA in the United case, questioned Patterson regarding the \$209,000 which the company paid to Wyoming Air Service for the Cheyenne-Denver route. United has applied to the Post Office for permission to serve Denver, but after a hearing was held the company decided the evidence was not promising and started negotiations with Wyoming Air Service, Patterson explained. Subsequently, the P. O. decided to allow United into Denver. Patterson stated that there was "nothing scientific" about computing the \$209,000 purchase price, adding that "we were in a seller's market."

In all, Godehn presented 13 company witnesses in order to give the CAA testimony concerning all UAL de-

partments. Besides Patterson, the witnesses were Paul Willcox, secretary and assistant to the president; R. E. Allen, assistant treasurer; J. A. Herlihy, vice president-operations; J. R. Cunningham, director of communications; Russell LeBrock, director of mail and express; Harold Cray, vice president-traffic; Ray W. Ireland, traffic manager; S. R. Richards, co-pilot; Linn Herring, UAL storekeeper at Cheyenne and secretary of the Airmen's Association; R. A. McGowan, mechanic at Cheyenne and president of the Airmen's Association; R. T. Freng, director of flight operations, and R. G. Kelly, superintendent of engineering and research. Testimony also was presented by Paul Brady, certified public accountant of Arthur Anderson & Co., which audits UAL's books, and L. L. Strauss, banker, connected with Kuhn, Loeb and Co., New York.

Strauss told the CAA that an air transport company should be able to earn 10%, after taxes, on its capital. In order to attract new capital into the business, the 10%, he explained, need not accrue to stockholders in dividends, adding that at least part of it could be plowed back into the company. Strauss recommended equity financing for airlines, explaining that the borrowing methods of the railroads are directly responsible for their present plight. Equipment trust certificates are not desirable, he stated, because they tend to result in stagnation of development. Referring again to the 10% return, Strauss said that it may decrease over a period of years until it approaches that of other public utilities, which is near 5%.

Brady testified that United needs a total working capital of approximately \$3,749,000, including funds for construction and equipment purchases. Exhibits showed that the book value of the fixed assets used in operations is \$5,297,513.87.

LeBrock explained that UAL's daily scheduled mileage is 43,625 divided as follows: mail pay, 28,519 miles, or 65.3%; credit trips, 13,926, or 31.9%; and exclusive passenger, 1,180, or 2.7%. The fourth mail-pay schedule between Chicago and Salt Lake City nets the company approximately \$250,000 per year, he stated. Herlihy testified that operations to North Beach Airport will increase expenses, adding 16 miles per one-way trip to Chicago-New York flights. There will be a duplication of certain facilities at North Beach and Newark, he said. Cray stated that the air travel plan had materially aided the sale of air transportation, and Ireland added that 44% of UAL's 1938 traffic came from scrip holders. Scrip is not discriminatory, Ireland said, because any person, with the necessary credit standing, can participate in the plan.

The Airmen's Association, McGowan explained, is not a company union, although only UAL mechanics belong. The union is about to sign a contract with the company, although mechanics are not satisfied with the conditions of the agreement, he added. The mechanics realize, however, that United has sustained heavy losses and is not able to pay higher wages at this time, McGowan said. Wages of co-pilots and mechanics are lower than those paid by other transcontinental lines, according to Richards and Herring. Patterson, recalled to the stand, told the CAA that it would cost \$21,000 to equalize co-pilots' pay with that of other lines, and \$180,000 to meet the mechanics' demands. Such sums are not included in UAL's rate application, he emphasized.

## Elected V. P.



O. R. Haueter

Who was elected vice president of Continental Air Lines on Apr. 19. He will continue as operations manager of the Denver-El Paso line.

## COTTON MAID TOURS

Alice Louise Hall Visits 22 Cities  
Accompanied by Airline Planners

Pretty, blonde Alice Louise Hall of Memphis recently completed a 21-day air tour to 22 principal cities in connection with a crusade aimed by the National Cotton Council of America to expand participation in National Cotton Week, May 22-27. Miss Hall, as 1939 "Maid of Cotton," visited both world's fairs and was accompanied by representatives of two major airlines who planned the tour.

George Bounds, Chicago & Southern publicity director, accompanied Miss Hall on the eastern tour, made via American, with stops at Nashville, Washington, New York, Boston, Buffalo and Detroit. Bounds directed the tour with the cooperation of Edward Bern, American's publicity director. Howard Netterville, Memphis attorney, national radio publicity director of the Memphis Cotton Carnival, made the western trip to Los Angeles, San Francisco and many west-coast cities. This trip was arranged by American. The north and south tour was made via Chicago & Southern from Chicago to St. Louis, Memphis, Jackson and New Orleans.

## UAL's Treasury Dept. Undergoes Alteration

Reorganization of United Air Lines' treasury dept. into three main divisions has been announced by N. B. Haley, treasurer, effective May 1.

Donald J. Rogers, veteran of the accounting dept., has been named auditor of revenues, in charge of division of revenue. Ralph E. Allen, former Boeing and United accountant, has been appointed auditor of general accounts and placed in supervision of the division of general accounts. Robert C. Wright, formerly with the air-mail service and subsequently with United and predecessor companies, has been named auditor of disbursements and head of division of disbursements. He also will serve as office manager at the company's new field headquarters building in Chicago.

Curtis Barkes, formerly asst. treas. of predecessor companies of UAL, will serve as asst. treas. of the line and will act in the place of Mr. Haley during the latter's absence. Don McDaniel, auditor of Boeing School of Aeronautics, R. E. Moore, auditor of shop accounting at Cheyenne, and O. E. Wilkinson, auditor of United Airports Co. of California Ltd., will continue at their respective stations.

## Lupton Leaves Braniff

George W. Lupton, Jr. has severed his connection with Braniff Airways as general counsel and has become associated with the law firm of Haight, Trippett and Syvertson in Los Angeles. Mr. Lupton was named Braniff counsel only a few months ago with headquarters in Oklahoma City. In announcing his new connection Mr. Lupton said he expects to be handling special matters for T. E. Braniff from time to time and hopes to be connected with aviation concerns on the west coast in the near future.

## AA Opens New Dayton Office

A downtown office for American Airlines was opened recently in the Biltmore Hotel, Dayton, by Brad Gibson, local sales manager. AA's business previously had been transacted through the office at Municipal Airport where Frank Doyle is station manager.

## Delta Flyer Joins Service

Shirley Reitzel, Delta Air Lines' flyer who has been operating an aviation school at Municipal Airport, Greenville, Miss., has become connected with C. P. Cole Flying Service Inc. of Heads. Reitzel is a veteran in cotton dusting.

## Airplane Metal for Ticket Office Motif



Since airline passengers are accustomed to shiny riveted dural metal Continental Air Lines, of which Bob Six is president, decided to introduce it into ticket offices. Photo shows interior of the company's new Denver office which opened last month. Further adding to the modernistic touch is the use of blue structural glass for the counter top, writing desk top and show window floor. Carpet is of blue. R. H. Herrnstein, general traffic manager, directed the furnishing of the office. John Brock, district traffic manager, is in charge of the office, assisted by Miss Frieda Milstein.

## SHATTO MOVES UP

Succeeds Reagan Stunkel Who Resigns To Take a Position With Lockheed

Stanley Shatto of Dallas has succeeded Reagan Stunkel as superintendent of Braniff Airways' maintenance department after serving as Stunkel's assistant for one year, the company's vice president, Robert J. Smith, has announced. Stunkel has resigned to accept a position with Lockheed Aircraft Corp.



Shatto

At 30, Shatto is a veteran airline engineer. Born in Reger, Mo., he entered aviation in 1926 with Robertson Airlines of St. Louis. Following periods with American, U. S. Airways and Penn-Central, he joined Braniff four years ago as engine overhaul superintendent.

Stunkel will be directly responsible in an advisory capacity to Mac Short, president of Vega Airplane Co., Lockheed subsidiary. He also will serve, on assignment, the Lockheed company and Menasco Engine Corp.

## United's Service Expanded

Expansion of service was made effective by United Air Lines on May 1 following the addition on Apr. 15 of other schedules to increase the company's monthly scheduled mileage to 1,500,000 miles. New expansion includes a third daily non-stop Chicago-NY flight speeded up to 3 hrs., 54 min. eastbound and 4 hrs., 35 min. westbound and additional coast-to-coast flights providing through sleeper service from the east and middle west to the Pacific northwest, giving the last named section direct sleeper service for the first time. A third daily coastwise Mainliner flight between Seattle, Portland, San Francisco and LA was inaugurated Apr. 15 to bring service on the line's west coast division up to its summer peak at the earliest time in history.

March Airline Statistics  
(CAA Figures)

	January 1939	February 1939	March 1939	March 1938	% of Increase over Mar. 1938	% of Increase over Mar. 1939
Companies operating	18	18	18	17		
Companies reporting	18	18	18	17		
Passengers (rev.)	80,344	72,496	106,349	77,739	36.80	46.70
Express (lbs.)	577,982	564,928	685,274	558,113	22.78	21.30
Express pound miles	354,500,080	349,218,080	415,083,212	346,309,637	19.86	18.86
Miles flown (Rev.)	5,453,657	5,031,767	6,142,967	5,549,469	10.69	22.08
Passenger miles flown (Rev.)	34,471,795	31,064,140	44,474,610	34,563,120	28.68	43.17
Available passenger seat miles	73,725,933	68,068,526	84,969,733	71,992,645	18.03	24.83
Revenue passenger load factor	46.76	45.64	52.34	48.01	9.02	14.68

Preliminary Statistical Report for the Month of Jan. 1939  
Post Office Department Figures May 1, 1939

Carrier	Route Length (Miles)	Miles of Service Performed	Pound-Miles Performed		Payments to Carriers certified by Department	
			Total	Per Cent of Whole	Total	Per Cent of Whole
United Air Lines	5,123	795,755	372,058,856	29.91	289,371.61	22.74
TWA	3,800	498,906	188,279,596	15.14	146,685.91	11.52
Northwest Airlines	2,409	325,784	80,488,162	6.47	101,267.83	7.96
American Airlines	6,768	933,965	308,671,955	24.82	285,711.82	22.45
Eastern Air Lines	4,518	504,448	172,672,686	13.88	134,071.63	10.54
Braniff Airways	2,283	222,302	35,161,520	2.83	61,403.40	4.82
Western Air Express	1,349	183,999	39,993,774	2.97	54,480.78	4.23
Pennsylvania-Central	1,733	128,955	15,532,689	1.25	38,193.88	3.00
Inland Air Lines	1,151	79,176	2,124,680	.17	19,333.85	1.52
National Airlines	872	57,047	2,843,509	.23	13,255.89	1.04
Chgo. & Southern	910	99,538	10,728,411	.86	31,840.16	2.50
Delta Air Corp.	1,096	107,568	11,016,941	.88	31,174.72	2.45
Mid-Continent	1,132	78,214	4,322,530	.35	26,065.33	2.05
Boston-Maine	651	55,376	900,921	.07	18,449.97	1.45
Continental Air	725	53,260	1,714,541	.14	17,750.33	1.40
Inter-Island	359	14,418	352,346	.03	3,604.50	.28
Grand Total	34,879	4,136,711	1,243,868,119	100.00	1,272,641.31	100.00

TWA Personnel Shifts,  
New Employees Reported

Recent personnel transfers and new employees have been announced by TWA. Transfers follow:

M. D. Murray, N. Y., chief ticket sales representative, to representative of traffic & sales; R. W. Bush, radioman at Newark, to chief radioman at Amarillo; W. F. McCormick, chief clerk, supt. of operations, to asst. office manager; H. W. Sims, passenger agent at KC, to reservations sales representative, KC; M. Hillias, KC passenger agent, to KC reservations sales representative.

New employees follow:

Joseph W. Morris, representative of traffic & sales, San Francisco; D. B. Albertsen, representative of traffic & sales, Washington; R. C. Horstmeier, passenger agent, Ft. Wayne; R. M. Bryson, passenger agent, Dayton.

The following new employees were named ticket & reservations sales representatives in the designated cities:

New York—A. J. Davis, James deRevere and J. A. Carpenter. Pittsburgh—Phillip Kuhn, Donald Heep. James Lightburn and Walter Bane. St. Louis—Charles W. Lonsdale. Philadelphia—Roger Scholl. Chicago—M. E. Skinner.

## NEW CONTROL CENTERS

CAA Adds Stations at Fort Worth, St. Louis, Salt Lake City

Three new airway traffic control centers were put into operation by the CAA on May 1 at Fort Worth, St. Louis and Salt Lake City, bringing the total to 11, including those at Newark, Detroit, Chicago, Atlanta, Burbank, Oakland, Washington, Cleveland and Pittsburgh.

The CAA states that the new stations will increase the annual number of controlled aircraft movements to 1,610,000 and will increase the airways under direct supervision of the CAA traffic control operators to 10,995 miles, or 45% of the total 24,011 miles covered by the civil airways system.

## Airline Personnel

W. S. Key, Jr., former traffic representative in Braniff's central office, Oklahoma City, has assumed the city traffic management of the line's Wichita office.

Former passenger agent for AA at Buffalo, Eugene C. Taylor has been promoted to chief passenger agent at Detroit.

Johnny Jones, who, on Dec. 1, 1938, made a record non-stop, non-refueling transcontinental hop in a stock Aeronca, has been employed by American as a first officer and now is engaged in flight duty Chicago-Newark.

Six Pan American pursers who make their homes in Miami and who have flown better than 1,000,000 miles by air in clipper, have formed PAA's exclusive Million-Mile Club. Heading the group is Nile Borges, "Chief Bald Eagle," who has seven years of constant flying, totaling 1,507,000 miles. Next high is Joe Fernandez, "Vice Chief Bald Eagle," with 1,474,950 air miles. Others are Jole Carrero, "Condor"; Ovilio Moreno, "Second Condor"; Mario Borges, "Flamingo"; and Bennie Blackman, "Seagull."

D. B. Wilson, formerly in charge of heavy industry sales for United in NY, and prior to that, d.t.m. in Cleveland, is again Cleveland d.t.m., succeeding W. F. Felten, who went to Chicago as asst. in the general sales office. Sam Grubb has been placed in charge of solicitation of the heavy industry classification replacing Wilson. Grubb formerly acted as asst. in this field. L. G. Wood, formerly in charge of the NY counter dept., has been made outside salesman assisting Grubb.

Former UAL traffic manager, Jack Schroeter has been made atlantic division manager for PAA's traffic dept.

Vernon Harold Mayfield has been employed by American in Chicago as first officer and now is attending the pilot training school.

Basil Forrester Warnock, former AA station manager at Cleveland, has been transferred to a similar position for the line in Buffalo.

Formerly in commercial aviation at South Bend, Ind., Charles A. Lippincott has been employed at Chicago by American as first officer, assigned to flight duty Chicago-Newark.

N. B. Grotov has been placed in charge of UAL's NY counter dept. Chester Bollinger, transferred from NY reservations to traffic, replaces Grotov.

W. R. Thigpen has been transferred by United from Portland traffic to LA as outside salesman, replacing George Strehle. John Grabow of Chicago field accounting was transferred to LA as district office accountant, replacing Harry Taylor. Jack Misselhorn is now outside salesman at United's Portland office replacing Thigpen. Al Nelson of Portland passenger service, was transferred to traffic, replacing Misselhorn.

New first officers employed by American in Chicago include R. A. Ellis, Jr. and David C. Barrow.

Clair Blaine has been employed by AA in Newark as meteorologist.

Canadian Colonial Traffic Up  
Canadian Colonial Airways, Inc., reports that it carried 492 passengers between Montreal and Newark in the first 17 days of April, comparing with 98 in the 1938 period.

## NWA Director



Hugh W. Stephens, with the Chicago office of Northwest Airlines for the last three years, has been appointed public relations director of the company, Croil Hunter, president, has announced. Mr.

Stephens has been identified with aviation since 1929. He will make his headquarters in St. Paul at NWA's executive offices at Holman Municipal Airport.

Airline Announces  
Scholarship Winners

Winners of aeronautical scholarship awards with a total value of \$11,140 were announced recently by the national committee of award of United Air Lines scholarships. Winners were determined through evaluation of treatises received from undergraduate students at colleges & universities throughout the U. S. and Canada. Winners are:

J. Louis Cameron, Spokane, Wash. Washington State College; Richard Hansford Burroughs, Jr., Richmond, Va., Princeton University; Emil Kissel, Staten Island, N. Y., College of the City of New York; Stewart Williamson Doe, Jacksonville, Fla., Georgia School of Technology.

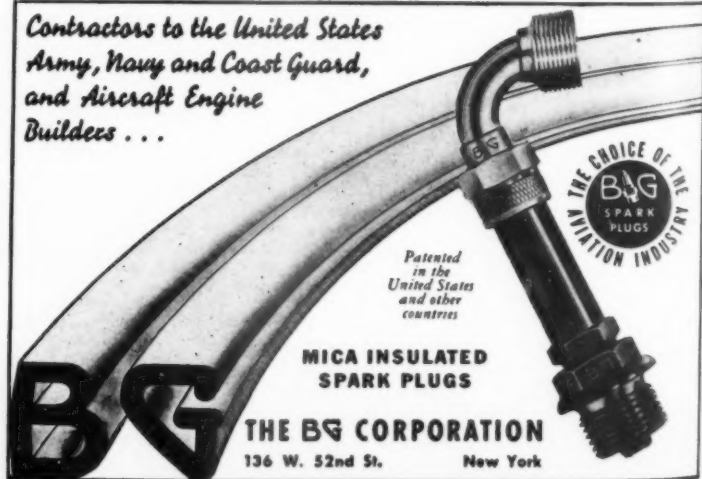
The national award committee was composed of the following men: Dr. Baldwin M. Woods, chairman, dept. of mechanical engineering, University of California; William B. Stout, pres. Stout Laboratories; Prof. Bradley M. Jones, University of Cincinnati, and A. F. Bonnalie, asst. supt. of flying, UAL.

Scholarship courses will be given at Boeing School of Aeronautics, Oakland, Cal., division of United.

Ala Littoria Granted Right  
For Rome-Buenos Aires Line

The Argentine government, by decree dated Mar. 6, granted permission to Ala Littoria, Italian line, for an airline between Rome and Buenos Aires, with an extension to Santiago, Chile. Announcement of the decree, which came from the automotive-aeronautics trade div., Dept. of Commerce, indicated that this is the first foreign airline to receive a concession for a fixed length of time (five years). A minimum of one round trip per week is called for, and the line is to be started within nine months of the date of decree. Authorization also is subject to revocation "if the Italian company or its affiliates prejudice the activities of Argentine aviation interests in other countries."

Contractors to the United States  
Army, Navy and Coast Guard,  
and Aircraft Engine  
Builders . . .



THE B & G CORPORATION  
136 W. 52nd St. New York



## Aviation to Open Fair Show May 20; Exhibits Feature Many Branches

Featured aviation exhibits at the New York World's Fair, scheduled to open on May 20, three weeks after opening of the fair, include an airway traffic control station, set up by the CAA; a Link trainer in charge of four operators who have completed a course at the Link factory in Binghamton, N. Y.; exhibits of various types of Army and Navy aircraft; a miniature flight research laboratory exhibited by the NACA; and a duplicate of the Curtiss-Wright 20, modern 30-passenger twin-engine transport. The attractions are to be shown in the Aviation Building under the direction of Capt. Eddie Rickenbacker, president of Eastern Air Lines and president of U. S. Aviation Exhibit Inc., aviation's cooperative show at the fair. General manager of the agency is Gus A. Parsons.

The CAA's traffic control station will be a complete reproduction of the station in operation at Newark Airport. Teletypes and radio circuits of the station are hooked in with those at Newark, and the voices of pilots as they "check in" by radio and of the traffic officer giving orders will be plainly audible. Personnel of the CAA is in attendance to explain the handling of air traffic by this system.

The Link trainer is specially equipped for the instruction of experienced pilots. It carries a radio compass, a radio marker beacon indicator, a directional gyro and a blind landing path recorder. As the operator flies blind, a small model plane moves across the face of the map, following his every motion. If, through an error in calculation, he misses the field or lands too obliquely, the public will know his mistake before he does.

Six planes in all are to be exhibited by the military services. Three of these are the latest Army ships and three are late-type Navy fighters. One plane from each service will be placed on the floor of the Aviation Bldg. The Army also will exhibit the original Wright brothers' wind tunnel in which the

first studies on lift & drag were measured in 1901 by Orville and Wilbur Wright. Other military service showings will include a full-sized replica of the 1902 Wright glider, exhibited by the Army, and three of the Navy's newest fighters, the Brewster, Vought and Curtiss.

Included in the NACA exhibit are the following models: the full-scale wind tunnel; the NACA tank for conducting research on seaplane floats and hulls; the variable density tunnel; a model engine giving a slow-motion demonstration of the apparatus designed by the committee for studying injection of fuel and combustion in a cylinder; a pressure distribution model showing why an airplane flies; a "G" recorder model demonstrating air bumps and measurement of pressure on wings; and an air flow model showing how boundary layer is removed by suction.

Another feature of this exhibit will be a sound motion picture entitled "For Better Aircraft in the World of Tomorrow," depicting scenes of modern air transportation and research activities in NACA laboratories.

The mock-up of the Curtiss-Wright 20 is equipped with 1500-hp. Wright Cyclone engines and a 15-ft. Curtiss full-feathering electric propeller.

Exhibitors at the fair include American, Eastern, TWA, United Airlines, Sperry, Douglas, Curtiss-Wright, United Aircraft, Bell, NACA, Army Air Corps and U. S. Naval Aviation.

Although a number of leading manufacturers have not participated in the exhibit to date, it is understood that over \$243,000 actually has been raised to launch the show. It was originally estimated that \$500,000 would be required to operate the exhibit full scale for two years, but the money raised so far is sufficient to get it started and continue it on a reduced scale. Companies already signed up are hopeful of bringing in the others during the next few months.



Solar introduced the drop-hammer method in manifold construction. Solar craftsmen developed the technique of shaping stainless steel this modern way.

Perfect maintenance, the watchword of the airlines, falls to the hands of men who have reached the highest skill known to their craft. No place for inexperience here!

No place for inexperience, either, when those vital stainless steel manifolds are under construction for you! Solar adds the "know-how" factor from a wealth of knowledge born in the making of over 6,000 stainless steel collector rings for high-power aircraft engines.

When you order exhaust manifolds from Solar you buy the best that men and machines have yet learned how to produce.



**SOLAR Aircraft CO**  
LINDBERGH FIELD • SAN DIEGO  
60 EAST 42 ST. • NEW YORK

### RADIO RULES PROPOSED

#### FCC Hearing Considers Assignment of Ultra-Highs to Aviation

New radio types of aviation radio stations provided for in new rules proposed at an informal hearing on Apr. 18, arranged by the Federal Communications Commission, follow: Radio stations to be used for instrument landings, flying school stations, and stations handling paid traffic for the public. Rules stress the fact that all plane-to-ground channels, with the exception of those to be provided for paid traffic, are to be used exclusively for a safety service, which takes priority over all other types of aviation traffic.

Also considered was the assignment of ultra-high frequencies to aviation for communication. The band between 140 and 143 m/cs has been reserved exclusively for this purpose. In addition, ultra-high frequencies were provided for use in connection with airport traffic control. It is expected that by 1941 a great number of airports will be equipped with ultra-high transmitters for use in connection with air traffic control.

### Canadian Colonial Announces 6 Daily NY-Montreal Flights

Six flights daily between New York and Montreal were announced effective Apr. 30 by Canadian Colonial Airways. Schedule follows: Trip 2, except Sun.—Lv. NY 6:30 a.m., ar. Montreal 9 a.m. Trip 6, daily—Lv. NY 2:30 p.m., ar. Montreal 4:40 p.m. Trip 4, daily—(non-stop; dinner served) Lv. NY 5:45 p.m., ar. Montreal 7:55. Flight NY 8:40 a.m. (non-stop). Trip 3 flies non-stop NY-Burlington; trip 6 non-stop NY-Burlington, but stops at Burlington Sunday only. Trip 5, except Sun.—Lv. Montreal 6:30 a.m., ar. NY 8:40 a.m. (non-stop). Trip 3 daily—Lv. Montreal 1:15 p.m., ar. NY 3:25 p.m. (non-stop). Trip 1 daily—Lv. Montreal 6 p.m., ar. NY 8:30 p.m. (non-stop, Burlington-NY; dinner served). EST shown in each case.

#### North Beach Hangar Shortage

All available hangars at North Beach Airport, New York City, having been leased and a tenant waiting to lease another, Mayor F. H. LaGuardia revealed he would propose to the board of estimate the construction of an additional hangar.

## BENDING ROLLS

FOR LEADING EDGE SKINS

58" RADIUS

UP TO 15'-0" LG.

FARNHAM MFG. CO.

1646 SENECA ST., BUFFALO, N. Y.

TAPER or  
STRAIGHT

## Preparing Carnival Invitations



Invitations to Birmingham's 9th annual National Air Carnival, to be held June 3-4, were sent out recently under the signatures of (left to right) Hayden Brooks, Birmingham Aero Club's president; Jimmy Jones, president, Birmingham City Commission, and Steadham Acker, general chairman of the show.

## 2nd Bellanca Junior Undergoing Tests

Tests were being continued recently on the second Bellanca Junior, constructed by Bellanca Aircraft Corp., New Castle, Del., according to announcement, when Holgar Holtrils took the craft aloft and later reported performance "satisfactory." The first Junior crashed during an experimental flight near Penns Grove, N. J. on Feb. 21, killing Test Pilot Cecil Hoffman.

A three-passenger model developed for private flying, the Junior is powered with a Le Blond 5E (70 hp.) or a 5F (90 hp.). A low-winged cantilever monoplane, the Junior is available with retractable undercarriage. Wing is of wood, with Bellanca B-type section with angular wing tips. Welded steel-tube construction is used in the fuselage. According to a statement to the SEC several months ago, the ship has a claimed service range of about 500 miles, with speed up to 135 mph. It was said fuel consumption would be "in excess of 22 miles per gallon" and that price would be about \$3,500.

Details of the 90-hp. model with retractable landing gear follow (retractable gear is extra; operates by crank means from either of the front seats):

Span, 34 ft. 2 in.; length, 21 ft. 3 in.; weight empty, 943 lbs.; all-up weight, 1,650 lbs.; maximum speed, 135 mph.; cruising speed (75% power), 120 mph.; landing speed, 45 mph.; rate of climb, 800 ft. per min.; cruising range, 500 miles.

## In New Positions



Byron Skillin (right) has been appointed New England traffic manager for Transcontinental & Western Air with headquarters in Boston, the company has announced. He replaces J. M. Wulpi (left) who has been transferred to Kansas City, Mo. to assume the position of interline traffic manager at TWA headquarters. Skillin has been with TWA since 1935. He recently married Adele von Schwanenslugle of Berlin. Wulpi was associated with Trans-American Airways, Detroit Airlines and Interstate Airlines before joining TWA six years ago.

## Wason and Brainerd Get New Mid-Continent Posts

V. Chase Wason was appointed district sales manager of Mid-Continent Airlines at Minneapolis, effective May 1, according to an announcement from B. B. Edwards, the company's sales manager. Mr. Wason for the last seven years was employed in the traffic dept. of Northwest Airlines, during the last three years of which he was d. t. m. at Vancouver, B. C.

Another new Mid-Continent appointment is that of R. L. Brainerd, graduate of Boeing School of Aeronautics, who has been made sales representative at Minneapolis.

## AA Surveys Proposed Route

Although formal application for the route has not been received by the CAA, American Airlines has launched an aerial survey over a portion of its proposed line from Oklahoma City to San Diego via Albuquerque and Phoenix. Three American engineers and a CAA air carrier inspector have taken part in the surveys. Daylight contact schedules are contemplated at first. Opposition to the granting of a certificate is expected from TWA and possibly United. The CAA has received notice of intention to file, but has not received the actual application.

## Exam For Investigator

The Civil Service Commission has announced examination for a senior air safety investigator of the Air Safety Board, CAA, salary \$4,000 a year. Applications must be on file with the commission in Washington not later than May 22 if received from states other than those named below, in which case they must be on file by May 25: Ariz., Cal., Colo., Ida., Mont., Nev., N. M., Ore., Utah, Wash., Wyo.

## Appointees Speak

Robert H. Hinckley, new CAA chairman, and Edward P. Warner, member of the Authority, were speakers at a luncheon meeting of the National Press Club in Washington on Apr. 26. Guests were Sen. Pat McCarran, W. A. Patterson, United Air Lines' president; Juan Trippe, Pan American Airways' president, and Col. John H. Jouett, president of the Aeronautical Chamber of Commerce.

## AA's Traffic Record

American Airlines set a record for the number of revenue passengers transported by a commercial air carrier during the month of April with a figure of 35,709. The figures, announced by Charles A. Rhetstrom, vice president-sales, reveal a 36.5% increase over Apr. 1938. Average passenger load per plane mile was 10.3 also a gain over Apr. 1938 when it was 9.1.

## CAA to Conduct General Investigation, Hold Hearing on Air Travel Card Plan

The CAA has informed all air carriers that it will conduct an "immediate general investigation" and hold a hearing at a subsequent date not yet announced on the air travel card plan used by the airlines.

No reason was given by the Authority for the investigation other than that it was "acting upon its own initiative," but it is believed that the purpose behind the hearing is to give the carriers a chance to justify scrip as not being discriminatory under section 404(b) of the Civil Aeronautics Act.

## Electra for MCA

J. C. Collins, secretary-treasurer of Mid-Continent Airlines, has announced that the company will purchase a Lockheed Electra among new equipment to cost \$120,000 which also includes improved radio communications equipment. It had been announced earlier that Mid-Continent will buy the first Vega. The new radio transmitter of 1,000 watts has been installed, Collins said, replacing the 400-watt transmitter. The Electra is expected to see service by July 1.

## Fuel Injection System

### O. K. for Safety Fuels

Tests with safety fuels in engines equipped with a fuel injection system instead of a carburetor have proved successful, according to the NACA at the Langley Field inspection tour May 2, and safety fuels may be used without loss of power or economy. The tests revealed the fuel injection system is superior to the carburetor in almost every respect, thus opening the way to elimination of the gasoline fire hazard. Safety fuels cannot be used with carburetors. A Bendix fuel injection system is now being used experimentally on a United Air Lines transport.

## Lindbergh an Interested

### Spectator on NACA Tour

Col. Charles A. Lindbergh proved to be an affable, interested spectator at the 14th annual inspection of the NACA Langley Field laboratories on May 2. The colonel made the boat trip to and from Old Point Comfort, joined one of the tours inspecting the research facilities, and chatted genially with many of his old friends. Newspapersmen did not bother him and he seemed to be having as good a time as the members of the Casey Jones Academy of Applied and Practiced Choristers who provided the customary musical entertainment on the boat trip.

## Fuel Planes Arrive

Two Handley Page Harrow bombers, which have been converted into flying tanks for use in refueling Imperial Airways trans-Atlantic flying boats from the air, arrived recently in Montreal and were towed to the seaplane base of Fairchild Aircraft Co. at Longueuil. The bombers are fitted with twin Bristol Pegasus 20 engines developing 850 hp.

The investigation is said to have been hastened by increasing complaints from travel agents, who do not make a commission on scrip cards.

The airlines, it is believed, would oppose any change in the air travel plan on the grounds that abolishing scrip would seriously affect traffic volume. United Air Lines at its recent rate hearing stated that 44% of its 1938 business came from scrip holders, and American Airlines' percentage is believed to be even larger.

## RADIO CONFERENCE

### U. S. Representatives to Attend Meeting in Cracow, Poland, May 19-22

The U. S. Government on May 2 accepted an invitation from the International Commission of Air Navigation to be represented at a meeting of the subcommittee of the Third World Conference on Radiotelegraph Experts for Aeronautics, to be held at Cracow, Poland, May 19-22. Purpose of the meeting will be to discuss the regulation of radio facilities for intercontinental flying. Findings of the conference will be presented to the Fourth World Conference of Radiotelegraph Experts for Aeronautics, which will meet in Berlin in September.

Representatives of the U. S. at the Cracow meeting will be North Winship, Counselor of Embassy, American Embassy, Warsaw, Poland, chairman of delegation; Comdr. J. F. Farley, chief communications officer, U. S. Coast Guard; E. M. Webster, assistant chief engineer, Federal Communications Commission, and Floyd H. Simson, radio communications specialist, CAA.

## SW Airport Execs Meet

Tulsa, Okla., Apr. 28—Fulcher Armstrong, manager of Wichita Falls, Tex., airport, was elected chairman of the southwest division of the American Association of Airport Executives at a meeting held here today. Seventeen airport managers were present. John H. Burke of Wiley Post Airport, Oklahoma City, was elected secretary, and Thornton Omyard of English Field, Amarillo, Tex., was named treasurer. Chas. W. Short, Jr., manager of Tulsa Airport, is national vice president. Next meeting of the division will be in Oklahoma City on June 15.

## Export to Fly Soon

American Export Air Lines is expected to make its first trans-Atlantic test flight in a Consolidated PB7 flying boat, built for commercial purposes, within the month. A 1,500-watt domestic radio station at Newark is said to be available to the line.

## DC-5 On One Engine



The DC-5, built at the El Segundo Div. of Douglas Aircraft Co. Inc., is shown here at the start of its single-engine tests. Based on present data obtained in test flights made by Maj. Carl A. Cover, senior vice president, general manager and chief pilot, and Jake Moxness, company test pilot, the DC-5 will have a top speed of 230 mph. and will cruise, at 10,000 ft. with only 50% power, at 172 mph. With 65% power, the figure is raised to 196 mph. and with but 75% of power used the speed reaches 208 mph. Plane's initial rate of climb is 1,625 ft. per min. and its service ceiling 24,600 ft. On one engine the absolute ceiling is 12,200 ft., and the service ceiling 10,800 ft.



## THREE NEW PAN AM DIRECTORS NAMED

John M. Franklin, Mark T. McKee and Thomas A. Morgan  
Elected to Board

The election of three new directors, John M. Franklin, Mark T. McKee and Thomas A. Morgan, were announced by C. V. Whitney, chairman, of Pan American Airways Corp. on Apr. 27.

As an officer of Argonaut Steamship Co., Mr. Franklin rose to the position of managing head, and in 1930, with Kermit Roosevelt and Basil Harris, organized the Roosevelt Steamship Co. When this merged with International Mercantile Marine Co. he became vice-president of the latter, and in 1936, was made president. He is a vice-president of the Baltimore Mail Line. Directorates include American Merchant Marine Institute, American Steamship Owners Mutual Protection & Indemnity Association, American Merchant Marine Insurance Co., Maritime Association of the Port of N. Y., and the Number One Broadway Corp., which he also serves as president.

Mr. McKee is at present, and has been for the last five years, chief executive of the Wisconsin and Michigan Steamship Co. Associated in a management capacity with various railroad and steamship companies for the last 20 years, he also is a director of American Airlines.

Mr. Morgan in 1912 became associated with Sperry Gyroscope Co. and later was elected president, then chairman of the board, and, in 1933, became president and director. From 1931 to 1935 he also served as president of Curtiss-Wright Corp., of which he was chairman during 1935 and '36. President of the Aeronautical Chamber of Commerce for three consecutive terms, he is widely known in the aeronautical industry and still serves as a governor and member of the chamber's executive committee.

## Martin Places Second Order With Fairchild

The Glenn L. Martin Co. has ordered control surfaces for 115 additional aircraft from Fairchild Aircraft Corp., and has requested an option on such assemblies for 100 more planes, which would be exercised by June 1, according to information filed by Fairchild with the Securities & Exchange Commission. Cost to Martin of each set in the latest order is \$2,470. The products include ailerons, elevators and rudders. Martin at the same time also ordered other aircraft parts approximating \$18,697, it is reported.

First order placed with Fairchild by the Martin company was made Feb. 15, it is also revealed, for control surfaces for 115 planes, with spare parts for 15 more, quotation being \$3,500 per set, with raw materials furnished by Martin. Deliveries under the original order were to commence May 15 and be completed Aug. 29. Price per set was to be reduced, at Martin's option, by \$10 for each day's delay beyond specified delivery dates, and upon failure of delivery within 30 days of dates scheduled Martin could cancel and receive a refund on advance payments. Martin may also cancel the order on 48 hours' notice and upon payment of all applicable costs up to the cancellation. Advance payments up to 30% of the total purchase price were specified.

### Fifth Clipper Delivered

The fifth Boeing 314 was delivered to Pan American at Astoria, Ore. on May 5, at which time PAA paid \$584,000 to Boeing. The sixth and last clipper of the PAA order will be delivered soon, it is reported.

## New PAA Directors



Thomas A. Morgan (left) and John M. Franklin, elected to Pan-American board of directors.

## Pan American 1938 Profit \$46,671; System's Route Mileage 53,548

Pan American Airways Corp. and subsidiaries announce a net income for the year ending Dec. 31, 1938, of \$46,671.87, comparing with \$510,416.68 in 1937. The report does not include Pan American-Grace Airways, Inc., and China National Aviation Corp. Gross revenues increased from \$12,275,000 in 1937 to \$14,186,000 in 1938.

On the Latin American services, operating costs rose from \$11,240,000 in 1937 to \$12,899,000 in 1938, while gross revenues increased from \$12,275,000 to \$14,186,000. Operating profits increased from \$1,035,000 to \$1,287,000 in 1938. The Mexican subsidiary, Compania Mexicana de Aviacion, S. A., showed a "substantial" gain in commercial traffic, although the company did not improve its financial position.

Operating costs of the trans-Pacific service increased from \$2,811,000 in 1937 to \$2,951,000 in 1938, while gross revenues fell from \$2,307,000 in 1937 to \$1,796,000 in 1938. Operations showed operating losses of \$1,155,000, comparing with \$504,000 in 1937. "The most important development of the year in the Pacific was acquisition of rights to establish an air base on Canton Island," the company states.

"Early in 1938," China National Aviation Corp., in which PAA owns a 45% interest, will extend service from Tunnan-fu to Hanol, French Indo-China, and to Mandalay and Ragoon. On the Bermuda service, 1,829 passengers were carried during the year. The PAA system on Dec. 31 had a route mileage of 53,548, including associated companies, and the operating fleet comprised 126 terminal and intermediate airports and 137 individual ground control and communication stations, together with 24 radio-telephones installed in launches and at airports.

Subsidiaries of PAA Corp. had at Dec. 31 commitments for about \$4,250,000 in connection with purchase of flight

equipment and airport improvements, requiring about \$2,300,000 cash within 1939, in addition to amounts in escrow under terms of equipment purchase contracts.

Balance sheet for Dec. 31, 1938, shows total assets of \$34,341,885.13. Total current assets were \$2,416,700.21, with cash of \$847,953.95; accounts receivable of \$1,526,965.69; securities owned, \$41,780.57. Other assets include: materials & supplies, \$2,715,429.20; deposited as security or temporarily restricted as to sale, \$46,302.14; securities & cash reserved for equipment purchases, \$1,979,142.60; investment in associated companies \$1,187,456.47; airports, buildings and equipment, \$20,825,733.33; balances receivable from foreign governments, \$188,167.60; prepaid & deferred charges, \$246,464.29; charges related to contracts, leases, concessions, etc., \$4,736,489.29.

Current liabilities, totaling \$3,758,933.37, included notes payable to banks in amount of \$1,546,071.43; accounts payable, including accruals, \$1,842,343.09; reserve for domestic & foreign capital stock, income and other taxes, \$370,518.85. Other liabilities included: Notes payable to banks, \$965,000.00, with notes payable Jan. 15, 1940; deferred charges, \$257,540.54; balance of purchase price of assets payable from future profits of subsidiary \$3,637.97; reserve for depreciation of buildings, airport improvements & equipment \$3,992,415.42; interest of minority stockholders in subsidiaries \$250,466.52; reserve for self-insured risks, \$1,193,023.70; sundry reserve balances of foreign subsidiaries \$122,381.64. Capital stock of PAA Corp., (2,000,000 \$5 par common shares authorized) issued & outstanding, 1,406,800 shares (\$7,034,000.00); Consolidated capital surplus was \$10,885,732.77. Consolidated earned surplus \$847,753.20.

The profit & loss statement shows revenues from operations as follows: From transportation (including \$8,304,280.08 from U. S. & Foreign mail) \$15,570,059.86; revenue from operations other than transportation, \$371,030.70. Non-operating income included: Dividends, \$77,739.44; interest on securities & sundry balances, \$29,339.05; miscellaneous non-operating income, \$27,783.10.

## CLASSIFIED ADS

7c per word—minimum charge \$1.00—Payable in advance

### FRANK AMBROSE, INC.

Dealers and Exporters

Airplanes, Engines, Part Supplies

Office: Whitestone, New York.

Storeroom: Roosevelt Field, Mineola, N. Y.

### WANTED

Aero Dynamics Instructor—Western approved school wants Aero Dynamics instructor who can also assist in licensing of experimental aeroplane—Box 118, American Aviation.

Wanted original poems, songs, for immediate consideration. Send poems to Columbia Music Publishers Ltd., Dept. W-38, Toronto, Can.

Holder of airline pilot and dispatcher certificates desires position. Ten years' line experience. Box 43, AMERICAN AVIATION.

### 3 NEW PCA DIRECTORS

George R. Hann, F. R. Crawford and L. P. Arnold Elected to Board

George R. Hann, Pittsburgh attorney; F. R. Crawford, and L. P. Arnold, officers of Pennsylvania-Central Airlines, have been elected directors of the airline. They replace Rex Jacobs, John H. Coulter and John F. Miller. Following officers were reelected: C. Bedell Monro, president; Mr. Crawford, executive vice president & secretary; Mr. Arnold, vice president; J. J. Donovan, vice pres.—traffic; R. G. Lochiel, treas. & comptroller.

Reelected directors are James L. Adler, Armand Erpf and John L. Loeb, all of Carl M. Loeb, Rhoades & Co., Pittsburgh; K. H. Bair, president, K. H. Bair Co., Greensburg, Pa.; William V. Couchman of Cohu Bros. & George, New York; Lorenze Iverson, president, Mesta Machine Co., Pittsburgh; George T. Ladd, president & general mgr., United Engineering & Foundry Co., Pittsburgh; G. Franklyn Ludington of Milbank, Tweed & Hope, New York; C. L. McCune, v. p. & treas. of Lewis Production Co., Pittsburgh; S. Stewart Mitchell of O'Brien, Potter & Co., Buffalo; Mr. Munro; R. S. Richards of Kay, Richards & Co., Pittsburgh.

40. Operating expenses: maintenance & repairs, \$3,335,202.87; rents, \$217,417.32; depreciation, \$2,135,246.70; amortization, \$621,293.98; other operating expenses (including salaries, wages, fuel and insurance) \$8,346,081.34. Income deductions: provision for Federal income tax, \$231,980.00; other taxes, not including sales taxes, etc., included in operating expenses above, \$332,019.37; uncollectible balances, \$17,252.91; provision for doubtful accounts, \$35,000.00; minority interest in net income of subsidiaries \$51,915.27; charges arising from sale, loss and retirement of assets, \$626,236.85; interest, \$75,514.59; charges resulting from conversion of foreign exchange balances, \$1,119.38.

## RECORD OF SCHEDULED AIRPORT OPERATIONS

	Week Ended Apr. 22		Week Ended Apr. 29		Week Ended May 6	
	Passengers In	Transports Out	Passengers In	Transports Out	Passengers In	Transports Out
Burbank (Union)	785	844*	777	850*	769	824*
Cleveland (Municipal)	.....	.....	1,918	1,917	1,912	1,904
Dallas (Love)	1,004	1,062	144	1,086	143	1,069
Pittsburgh (Allegheny Co.)	.....	.....	1,158	1,158	1,069	1,081
San Francisco	30	59	13	13†	19†	1,192
						1,064**
						245
						245

\* Figures from Burbank Union Air Terminal show totals for United, TWA and WAE; include no through passengers and revenue passengers only.

\*\* Figures from Allegheny County Municipal Airport show passengers in and out of Pittsburgh; no through passengers counted.

† Construction limits San Francisco field to small transports.

## Aero Patents

114,260: Design for a Goggle. Issued to Joseph Brunetti, Carlstadt, N. J. Term of patent, 3½ years.

114,299: Design for an Airplane. Issued to Clifford E. Roberts, Joppa, Md., assignor to The Glenn L. Martin Co., Baltimore, Md. Term of patent, 14 years.

2,153,562: Aerial Advertising Banner. Issued to Paul E. Hovgard, Bristol, Pa., assignor to Kellett Autogiro Corp., Philadelphia, Pa.

2,153,603: Aircraft Power Plant Installation. Issued to Edward C. Wells, Seattle, Wash., assignor to Boeing Aircraft Co., Seattle.

2,153,610: Rotative Winged Aircraft. Issued to Harris S. Campbell, Willow Grove, Pa., assignor, by mesne assignments, to Autogiro Company of America, Willow Grove.

2,153,667: Airplane Control. Issued to Harold D. Hoekstra, Wayne, Mich., assignor, by mesne assignments, to Aviation Manufacturing Corp., Chicago, Ill.

2,153,718: Navigation Apparatus for Aircraft. Issued to Isaac Kitzner, Viroflay, France, assignor to Societe Bronzavia, Paris, France.

2,153,782: Automatic Adjusting Means for Rotary Systems, Particularly Direction-Finders. Issued to Rudolf Weber, Leipzig, Germany, assignor to Telefunken Gesellschaft fur Drahtlose Telegraphie m.b.H., Berlin, Germany.

2,153,924: Aerial Advertising Device. Issued to Charles E. Haines, Santa Barbara, Cal., assignor to Pacific Giro Sales Co., Alameda, Cal.

2,153,940: Aerial Display. Issued to Norbert N. Shorb, San Francisco, Cal., assignor, by mesne assignments, to Ralph H. Brandt, Los Angeles, Cal.

2,154,063: Rocking Dynamic Damper with Floating Pin Support. Issued to Roland Chilton, Ridgewood, N. J., assignor, by mesne assignments, to Wright Aeronautical Corp., Paterson, N. J.

2,154,321: Steering Mechanism for Water and Aircraft. Issued to Henry C. Briggs, Brooklyn, N. Y.

2,155,426: Rotative-Winged Aircraft. Issued to Agnew E. Larsen, Huntingdon Valley, Pa., assignor, by mesne assignments, to Autogiro Company of America.

2,155,468: Flapping Wing System. Issued to Friedrich Budig, Marlow, England.

2,155,481: Spark Plug. Issued to Edward Howell Fenn, West Hartford, Conn., assignor to United Aircraft Corp., East Hartford, Conn.

2,155,513: Hinge Mechanism for the Moving or Control Surfaces of Aircraft. Issued to Rene Tamplier, Boulogne-sur-Seine, France.

2,155,712: Magnetic Compass. Issued to Walter E. Hull, Warren, O.

2,155,931: Method of Applying an Aircraft Covering. Issued to Alfred S. Daneman, Dayton, O.

2,156,010: Sky Writing Device. Issued to Robert Connor, Brooklyn, N. Y.

2,156,133: Propeller. Issued to Theodore H. Troller, Akron, O.

2,156,202: Airplane Engine. Issued to Louis R. Spencer, West Hartford, Conn., assignor to Spencer Aircraft Motors Inc., Hartford, Conn.

2,156,203: Multicylinder Engine. Issued to Louis R. Spencer, West Hartford, Conn., assignor to Spencer Aircraft Motors Inc., Hartford, Conn.

2,156,210: Parachute Garment Life-saving Device. Issued to William D. Upson, Arcade, N. Y.

2,156,232: Airplane Passenger Cage. Issued to Mario Cichero, Ridgewood, N. J.

2,156,129: Carburetor. Issued to Stuyvesant C. Smith, South Bend, Ind., assignor to Bendix Products Corp., South Bend.

2,156,103: Spraying Device for Airplane Propellers. Issued to Harvey D. Austin, Akron, O., assignor to Bendix Aviation Corp.

### United Air Lines

Operating revenues for United Air Lines for the year ending Dec. 31, 1938, are shown in detail in a report to the SEC. Following are consolidated figures: Passenger revenue \$5,510,888.84; excess baggage \$59,401.00; mail \$3,505,136.85; express \$419,321.10; mail messenger \$22,080.15; motor fuel & oil sales, net, \$28,784.50; repairs & service sales, net, \$50,051.03; restaurant, \$6,816.19; rents of building & equipment, net, \$71,730.71; airport & taxi flights, \$17,189.21; miscellaneous sales, net, \$14,702.64; tuition earned, Boeing School of Aeronautics, \$219,051.05. Operating revenues, total, \$9,925,153.27. As of Dec. 31, 1938, UAL and subsidiaries owned 26 hangars, 2 airports, 3 office buildings, 62 planes, 179 engines. Cost of the new office building at Chicago airport was \$299,159.

2,156,104: Vacuum Fuel Feed Device. Issued to Frederik Barford, South Bend, Ind., assignor to Bendix Products Corp., South Bend.

2,156,102: Propeller. Issued to Ellsworth W. Austin, Cedar Rapids, Ia., assignor to Bendix Products Corp., South Bend, Ind.

2,156,012: Indicating Instrument for Aircraft. Issued to Harvey Doyle, Lutherville, Md., assignor to Pioneer Instrument Co., Inc., Brooklyn, N. Y.

2,155,881: Aircraft. Issued to Edward Burke Wilford, Merion, and Adolph Herzog, Penn Valley, Pa.; said Herzog assignor to said Wilford.

2,155,586: Arrangement for Automatically Regulating the Pitch of Variable Pitch Propellers. Issued to Heinrich Ebert, Frankfurt-on-the-Main, Germany, assignor to Vereinigte Deutsche Metallwerke Aktiengesellschaft, Frankfurt-on-the-Main, Heddernheim, Germany.

2,155,546: Variable Airfoil Structure. Issued to Rowland M. Hill, Detroit, and Robert D. Wiley, Oakland, Mich.

2,155,427: Aircraft Sustaining Rotor. Issued to Agnew E. Larsen, Huntingdon Valley, Pa., assignor, by mesne assignments, to Autogiro Company of America.

2,155,421: Safety Device for Hydraulic Servo-Motors. Issued to Theodore W. Kenyon, Huntington, Stephen J. Zand, Forest Hills, and Bert G. Carlson, Preport, N. Y., assignors to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

2,155,409: Aircraft With Autorotative Wings. Issued to Juan de la Cierva, Madrid, Spain, assignor, by mesne assignments, to Autogiro Company of America.

2,155,401: Rate Control Course Changing Means for Automatic Pilots. Issued to Bert G. Carlson, Preport, N. Y., assignor to Sperry Gyroscope Co. Inc., Brooklyn, N. Y.

114,533: Design for an Airship. Issued to Justus W. Fry, Renton, Wash. Term of patent, 14 years.

114,626: Design for a High-Wing Cantilever Monoplane. Issued to James G. Taylor, Dayton, Roscoe C. Wilson, Fairfield, and Oscar A. Swanson, Dayton, O., assignors to government of U. S. as represented by Secretary of War and his successors in office. Term of patent, 7 years.

2,156,403: Lateral Control Surfaces of Airplanes. Issued to Henri Riviere, Paris, France, assignor to Compagnie des Avions Hanriot.

2,156,602: Engine Starting Mechanism. Issued to Romeo M. Nardone, East Orange, N. J., assignor to Eclipse Aviation Corp., East Orange.

2,156,603: Engine Starting Mechanism. Issued to Romeo M. Nardone, East Orange, N. J., assignor to Eclipse Aviation Corp., East Orange.

2,156,666: Explosive Mechanism. Issued to Romeo M. Nardone, East Orange, N. J., assignor to Eclipse Aviation Corp., East Orange.

2,156,667: Engine Starting Mechanism. Issued to Romeo M. Nardone, East Orange, N. J., assignor to Eclipse Aviation Corp., East Orange.

2,156,773: Retractable Landing Gear. Issued to Igor I. Sikorsky, Trumbull, Conn., assignor to United Aircraft Corp., East Hartford, Conn.

2,156,994: Aircraft. Issued to Gustav Victor Lachmann, Canons Park, England, assignor to Handley Page Ltd., Cricklewood, Middlesex, England.

2,157,042: Wing, Fuselage or Other Aircraft Body. Issued to Barnes Neville Wallis, Weybridge, England, assignor, by mesne assignments, to Vickers-Armstrongs Ltd., London, England.

2,157,045: Airship. Issued to William Wiese, Cleveland, O.

(Persons desiring complete copies of patents listed should write to Commissioner of Patents, Dept. of Commerce, Washington, D. C., specifying serial number. Price is 10c per patent.)

### Fairchild to Acquire Ranger

Through a report to the SEC, it was learned that assets of Ranger Engineering Corp., now a Fairchild Engine & Airplane Corp. subsidiary, will be acquired by the latter and the engine firm will become an operations division of the parent. Ranger then will be dissolved or become an inactive subsidiary, the report states.

### Another Allison Addition

Construction of a second new addition to its plant near Indianapolis has been started by Allison Engineering Corp., General Motors subsidiary. Floor space will be increased from 100,000 to 300,000 sq. ft.

## Canada Lifts 3% Excise Tax on U. S. Imports; Saving Seen

The Canadian government on Apr. 26 lifted its 3% excise tax on all goods imported from the United States. Had this been done prior to Jan. 1, 1938, buyers of American products classified as aeronautical would have saved \$105,332 during the year. These products were valued at \$3,511,093 in 1938, according to the Bureau of Foreign and Domestic Commerce. In the first three months of this year, Canada bought U. S. aeronautical products valued at \$251,574, on which was paid \$7,547 in excise tax. Actually, the saving to Canadian customers will be greater, however, because many raw materials and metals not classified as aeronautical goods are bought by Canadian manufacturers from this country.

### Vought-Sikorsky Execs

General manager of the new Vought-Sikorsky Aircraft Div. of United Aircraft Corp. is Rensselaer W. Clark. Other divisional executives are: Charles J. McCarthy, asst. general manager; Igor I. Sikorsky, engineering manager; Fred Bettiger, supt.; Ernest W. Dichtman, sales manager; Rex B. Beisel, chief engineer; Michael Gluhareff, chief of design and aerodynamics; Serge Gluhareff, executive engineer; E. H. Gaettil, asst. treas., asst. secy. and division accountant; and H. F. Conover, asst. secy. and auditor.

### American Airlines, Inc.

American Airlines, Inc., has filed an application to register 525,000 shares of capital stock on the New York Stock Exchange. Company states 500,000 shares are now registered permanently on the N. Y. Curb Exchange. Statement reveals company owns 66 planes and 181 engines, of which 48 aircraft are used for commercial operation. Net book value of all flying equipment on Feb. 28 was \$2,369,982.39. Between Dec. 31, 1938, and Apr. 20, 1939, \$25,000 principal amount of 5 year 4½% convertible debentures were retired and canceled upon conversion into 2,016 shares of capital stock at basic conversion rate of \$12.50 per share. As of Apr. 20, 1939, outstanding convertible debentures amounted to \$2,598,900.00, and outstanding stock was increased to 282,088 shares. As of Apr. 20, Aviation Corp. owned \$2,422,112.50 in 5 year 4½% convertible debentures (\$3.2% of the class) and owned \$872,187.50 in 5 year 4½% non-convertible debentures, or 100%.

### United Aircraft Corp.

United Aircraft Corp. for the quarter ended Mar. 31 reports net profit of \$1,490,799.75 (\$6c each on 2,649,437 shares outstanding) after taxes and minority interests in profits of Canadian subsidiary. Sales and operating revenues included: sales of aeronautical products, parts & service, \$9,727,565.16; royalties, proceeds from sale of design & manufacturing rights & licenses, and other income from licenses, \$58,753.94. Operating costs & expenses: cost of sales \$6,358,265.89; depreciation, \$189,719.88; engineering development, selling & administrative expenses, \$1,449,701.04.

## Comparative Aviation Values

Revised study of the aviation industry made by J. S. Bache & Co., 42 Broadway, New York City, and released exclusively to AMERICAN AVIATION dated April 29, 1939. (Earlier data published in the issue of Dec. 15, 1938).

TABLE I. SALES, NET INCOME AND PROFIT MARGINS

	1933			1937		
	Sales	Net Income	Profit Margins	Sales	Net Income	Profit Margins
Aero Supply	\$1,070,000	\$109,000	10.2	\$1,412,000	\$236,000	16.7
Aviation Corp.	6,374	188k	2.9	3,987	def 437	...
Beech	1,141	def 2	...	788	14	1.8
Bell	1,219	65	5.4	1,708	43	2.5
Bellanca	1,341	172	12.9	1,592	120	7.5
Boeing	2,006	def 553	...	5,545	312	5.6
Breeze	2,573	135	5.3	1,481	94	6.3
Brewster	1,490	234	15.7	713	19	2.7
Consolidated	12,245	1,535	12.5	11,907	463	3.9
Curtiss-Wright	33,103	3,569	10.9	24,116	1,984	8.3
Douglas	26,347	2,147	7.6	20,950	1,082	5.2
Fairchild Aviation	2,196	322	14.7	1,412	140	9.9
Grumman	4,905	617	12.6	2,334	139	6.0
Irving Air Chute	1,928	396	20.7	1,790	279	15.6
Lockheed	10,275	442	4.3	5,210	138	2.7
Martin (Glenn L.)	12,417	2,349	18.9	7,839	1,145	14.6
No. Amer. Avia. (c)	10,062	1,904	18.9	3,470	312	9.0
Sperry	nr	4,961	nr	nr	2,950	...
United Aircraft	36,800	5,426	14.7	29,295	3,856	13.1

TABLE II. PER SHARE EARNINGS AND PRICE RANGES

	Earned Per Share		Year		Price Range		
	1st Quarter	1938	1937	Current	Price High	Low	1937-1939
Aero Supply "B"	\$0.03	\$0.07	\$0.22	\$0.52	3 1/4	6 1/8	1 1/2
Aviation Corp.	def 0.15	0.05	0.07	def 0.16	5 1/4	9 1/4	2 1/4
Beech	def 0.12	...	def 0.01	0.06	8 1/8	11	2 1/8
Bell	...	0.34	0.29	0.69	2 1/2	3 7/8	8
Bellanca	...	0.99	0.69	...	6 1/8	12	2
Boeing	...	def 0.07	def 0.77	0.45	21 1/4	49 1/2	16
Breeze	...	0.43	0.30	0.68	14 1/4	1	2
Brewster	...	0.27	0.67	0.06	8 1/8	12 1/2	3
Consolidated	...	2.55	0.68	19 1/8	33 3/8	8	...
Curtiss-Wright "A"	1.47	0.63	3.11	1.71	25 1/8	28 1/4	8 1/8
Curtiss-Wright Com.	0.15	def 0.02	0.17	0.04	5 7/8	8 1/2	2 1/2
Douglas	0.80e	0.71	3.76	1.90	59 1/2	80 1/4	20 1/4
Fairchild Aviation	0.16	0.11	0.96	0.41	11 1/2	16	1 1/2
Grumman	...	1.30	0.32	15	22 1/2	5 1/4	...
Irving Air Chute	...	2.02	1.41	15 1/8	21 1/8	5 1/4	...
Lockheed	...	0.67	0.21	24 1/8	37 1/4	4	...
Martin (Glenn L.)	0.63	0.58a	2.15h	1.32	34 1/8	39 1/8	10
No. Amer. Aviation (g)	...	0.06	0.55	0.15	14 1/2	20	3
Sperry	...	2.46	1.46	41	49 1/8	10	...
United Aircraft	0.56	0.42	2.05	1.52	36	43 1/4	10 1/4

TABLE III. BACKLOG OF UNFULFILLED ORDERS

	Date		Backlog		% 1938 Sales	
	4/25/39	12/31/38	\$			
Aero Supply	...	...	240,000	19	22	...
Aviation Corp.	...	...	1,200,000e	410	...	...
Beech	...	...	nr	...	...	...
Bell	4/28/39	...	5,000,000e	...	...	...
Bellanca	...	...	nr	...	...	...
Boeing	3/1/39	...	14,664,992	731	...	...
Breeze	...	...	nr	...	...	...
Brewster	4/24/39	...	2,400,000	161	...	...
Consolidated	4/28/39	...	9,000,000e	73	...	...
Curtiss-Wright	4/28/39	...	40,000,000e	121	...	...
Douglas	4/19/39	...	32,294,571	114	...	...
Fairchild Aviation	3/31/39	...	1,113,284	51	...	...
Grumman	4/28/39	...	4,000,000e	82	...	...
Irving Air Chute	12/31/38	...	1,500,000e	78	...	...
Lockheed	4/28/39	...	30,000,000e	292	...	...
Martin (Glenn L.)	3/31/39	...	36,137,738	315	...	...
No. American Aviation	2/23/39	...	23,000,000e	229	...	...
Sperry	...	...	nr	...	...	...
United Aircraft	4/28/39	...	35,000,000e	95	...	...

a-Adjusted. b-Represents earnings on present capitalization; was \$2.51, based on capitalization to 12/10/38. c-Manufacturing division only. e-Estimated. g-Not Reported. h-Represents earnings on present capitalization; was \$2.51, based on capitalization to 12/10/38. g-1937 included airlines division since sold. k-Includes \$154,254 profit from sale of securities.



## GOVERNMENT CONTRACTS

(Awards of \$10,000 and Over)

## AIRCRAFT

\*Consolidated Aircraft Corp., San Diego, Cal. (Apr. 26) four-engined bomber planes, type B-24, \$2,880,000 (Army).  
 \*Curtiss Aeroplane Div., Curtiss-Wright Corp., New York, N. Y. (Apr. 25) single-engined pursuit planes, type P-40, \$12,872,398 (Army).  
 \*Lockheed Aircraft Corp., Burbank, Cal. (Apr. 26) two-engined pursuit interceptor planes, type YP-38, \$2,180,728 (Army).  
 \*Bell Aircraft Corp., Buffalo, N. Y. (Apr. 26) single-engined pursuit interceptor planes, type XP-39, \$1,073,445 (Army).  
 \*Beech Aircraft Corp., Wichita, Kan. (Apr. 26) photographic planes, type F-2, \$528,749 (Army).  
 \*Grumman Aircraft Engineering Corp., Bethpage, L. I., N. Y. (Apr. 21) airplanes & parts, \$1,096,476 (Navy).  
 \*Douglas Aircraft Co. Inc., El Segundo, Cal. (May 6) airplanes & spare parts, \$1,516,357 (Navy).  
 \*Consolidated Aircraft Corp., San Diego, Cal. (Apr. 15) airplanes, parts, \$1,609,057.62 (Navy).  
 \*Beech Aircraft Corp., Wichita, Kan. (Apr. 15) airplanes, parts, \$198,735.32 (Army).

\*Complete story on page 1.

## ENGINES, PARTS, ACCESSORIES

Wright Aeronautical Corp., Paterson, N. J. (Apr. 5) nuts, washers, etc., \$621,007.02 (Navy).  
 \*Kollsman Instrument Co. Inc., Elmhurst, N. Y. (Apr. 14) altimeters, \$28,050 (Navy).  
 \*Hamilton Standard Propeller Div., United Aircraft Corp., Hartford, Conn. (May 4) spare parts, \$48,984.92 (Navy).  
 \*Lockheed Aircraft Corp., Burbank, Cal. (May 4) services & materials, \$13,859.00 (Navy).  
 \*G. T. Bowser and Co. Inc., Ft. Wayne, Ind. (May 4) fuel consumer meters, \$32,510 (Navy).  
 \*Struthers Wells-Titusville Corp., Titusville, Pa. (May 6) propeller shafts, \$27,932 (Navy).  
 \*Pratt & Whitney Aircraft Div., United Aircraft Corp., Hartford, Conn. (Apr. 29) parts & tools for engines, \$209,000 (Navy).  
 \*Wright Aeronautical Corp., Paterson, N. J. (Apr. 29) engine parts, \$12,215.75 (Navy).  
 \*Wright Aeronautical Corp., Paterson, N. J. (Apr. 29) engine parts, \$31,554.25 (Navy).  
 \*Breeze Corps. Inc., Newark, N. J. (Apr. 29) starters, cartridge, \$10,917 (Navy).  
 \*Hamilton Standard Propellers Div., United Aircraft Corp., East Hartford, Conn. (Apr. 29) propellers & governor units, \$89,746.66 (Navy).  
 \*Pollak Mfg. Co., Arlington, N. J. (May 6) solenoid assemblies, \$18,439.50 (Army).  
 \*Bendix Products Div., Bendix Aviation Corp., South Bend, Ind. (May 6) wheel & brake assemblies, \$21,830 (Army).  
 \*Kline Mfg. Co., Columbus, O. (May 6) control assemblies, \$23,750 (Army).  
 \*Irving Air Chute Co. Inc., Buffalo, N. Y. (May 6) safety belt assemblies, \$13,250 (Army).  
 \*Douglas Aircraft Co. Inc., Santa Monica, Cal. (May 6) parts, \$12,558.45 (Navy).  
 \*Consolidated Aircraft Corp., San Diego, Cal. (May 6) spare parts, \$16,040.42 (Navy).  
 \*Consolidated Aircraft Corp., San Diego, Cal. (May 6) spare parts, \$12,039.65 (Navy).  
 \*Douglas Aircraft Co. Inc., Santa Monica, Cal. (May 6) spare parts, \$18,558 (Navy).  
 \*Kollsman Instrument Co. Inc., Elmhurst, N. Y. (May 6) generators, \$42,432 (Navy).  
 \*Pioneer Instrument Co. Inc., Bendix, N. J. (May 6) octants, bubble, \$23,500 (Navy).  
 \*Breeze Corps. Inc. and Weston Electric Instrument Corp., both of Newark, N. J. (Apr. 18) fuel mixture indicators, \$61,281 (Army).  
 \*Wright Aeronautical Corp., Paterson, N. J. (Apr. 18) oil strainers & attachments, \$87,800 (Army).  
 \*Kollsman Instrument Co. Inc., Elmhurst, N. Y., and Pioneer Instrument Co., Brooklyn, N. Y. (Apr. 18) aircraft instruments, \$197,750 (Army).  
 \*St. Louis Aircraft Corp., St. Louis, Mo. (Apr. 15) ski, \$10,830 (Army).  
 \*Pump Engineering Service Corp., Cleveland, O. (Apr. 15) air pumps, \$24,156 (Army).

## MISCELLANEOUS

\*Spriesch Tool & Mfg. Co. Inc., Buffalo, N. Y. (May 6) bomb shackle assemblies, \$16,980 (Army).  
 \*Aerial Machine & Tool Corp., New York, N. Y. (May 6) plunger, post, \$16,900 (Army).  
 \*Aero Leather Clothing Co. Inc., Beacon, N. Y. (May 6) flying clothes, \$15,756 (Army).  
 \*Walter Kidde & Co. Inc., New York, N. Y. (Apr. 29) oxygen cylinder assemblies, \$28,430.24 (Army).  
 \*Fairchild Aerial Surveys Inc., Los Angeles, Cal. (Apr. 29) contact prints, \$16,564 (Agriculture).  
 \*Harrington-Rex Co. Inc., Brooklyn, N. Y. (Apr. 18) part of award for windlass, tow-target; motor, electric & band assembly, \$12,244.10 (Army).  
 \*Bellipse Aviation Div., Bendix Aviation Corp., Bendix, N. J. (Apr. 18) part of award for: windlass, tow-target; motor, electric & band assembly, \$24,090 (Army).  
 \*Fairchild Aerial Camera Corp., Jamaica, L. I., N. Y. (Apr. 15) magazine assembly, camera, \$22,500 (Army).

## Blessings From Above

Canadian Press notes that farmers near St. Thomas, Ont., are harvesting a new crop—from U. S. planes operating between Detroit and Buffalo, consisting of paper plates, cups and other debris.

## CAA Station to Be Dedicated

Dedication of the Civil Aeronautics Authority's \$800,000 communications experimental station at Municipal Airport, Indianapolis, is scheduled for May 29. CAA officials, as well as representatives of the airlines and manufacturing companies, are expected to attend.

## WEEKLY AVIATION AVERAGES

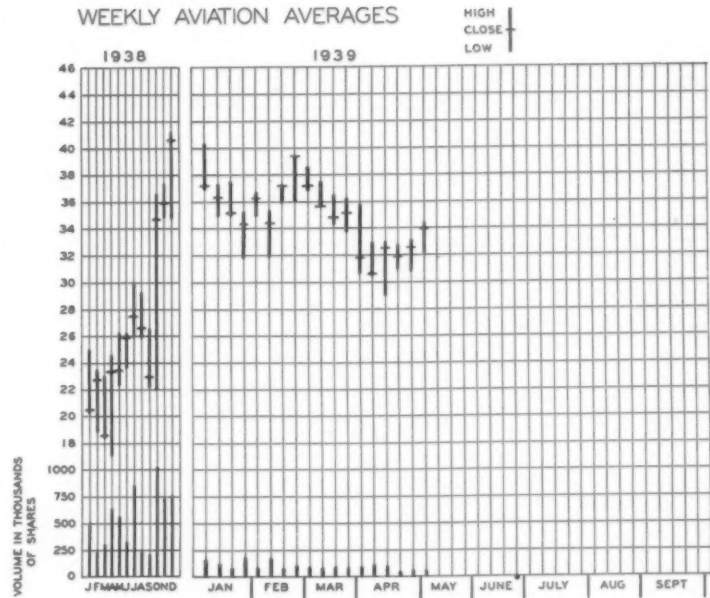


Chart Data Supplied by Wyckoff Associates, Inc.,  
 Comments by Philip P. Friedlander

What has made the performance of the aviation group averages difficult to determine has been the fact that recently they have strayed from the reservation of orthodoxy and are performing in an unusual manner. When this happens, and the ordinary guidepost of technical action is abandoned, the problem of determining the trend is increased 10-fold. There is difficulty at this point in determining the support levels. The usual swaying back and forth in a definite area for the establishment of a base has not occurred. Rather the averages have successively found lower supports only to rally away to successively higher points.

Around 29, recently, a new wave of buying appeared. The averages journeyed quickly to the 33 level, and then retreated sharply close to the 30 area. Then, again, without preparation, a move occurred that carried prices to a new high on the formation, to the 34 zone.

It appears that sooner or later the averages will line out, and give a definite story. It is within the realm of probability that instead of a long line established over a period of time that this upswing will take place in a step-and-stair formation. A small base and a move up. Another small base, higher grounds. The results will be the same, but for one to analyze and interpret the work will be harder.

What the technician knows now is that individual aviation stocks have made a line, indicating that they are, as individual securities, heading for higher territory.

The reason for this zig-zag formation is apparent after one reviews the general aviation situation, but these facts will be discussed later.

However, it is well to note that until 36 in the averages are reached, there appears to be little supply to hinder the forward journey.

## NEW YORK STOCK EXCHANGE

Week Ended Apr. 29				Week Ended May 6			
	High	Low	Net Change	Sales	High	Low	Net Change
Aviation Corp.	21 3/4	19 3/4	+ 1 1/2	7,200	22 1/2	20 3/4	+ 1 1/4
Bendix Aviation	21 1/2	19 3/4	+ 1 1/2	16,600	22 1/2	20 3/4	+ 1 1/4
Beech Aircraft	22 1/2	20 1/2	+ 1 1/2	10,100	23 1/2	20 3/4	+ 1 1/2
Consolidated Aircraft	20	18 1/4	+ 1 1/4	4,900	21 1/2	19	+ 1 1/2
Continental Motors	23 1/2	2	.....	4,700	21 1/2	21 1/2	.....
Curtiss-Wright	8	5	+ 3 1/2	43,700	6 1/2	5 1/2	+ 1 1/2
Curtiss-Wright A	23 1/2	22	+ 1 1/2	18,800	26 1/2	25	+ 1 1/2
Douglas Aircraft	60 3/4	57 1/4	+ 3 1/2	8,300	63 1/2	59	+ 4 1/2
Eastern Air Lines	13 1/2	12 1/4	+ 1 1/4	5,600	14 1/2	13 1/2	+ 1 1/2
Ex-Cell-O	18	16	+ 2	2,800	18 1/2	16 1/2	+ 2
Glenn L. Martin	34 3/4	32	+ 2 1/2	25,500	37 1/2	34 1/2	+ 3
Natl. Aviation Corp.	10 3/4	9	+ 1 1/2	3,000	10 3/4	9 1/2	+ 1 1/2
N. American Aviation	14 3/4	13 1/2	+ 1 1/2	15,900	16 1/2	14 1/2	+ 2
Pan American Airways	12 1/4	11	+ 1 1/4	3,300	11 1/2	11 1/2	.....
Sperry Corp.	41 1/2	38 1/2	+ 3	17,900	43	40 1/2	+ 2 1/2
Thompson Products	21 1/4	18 3/4	+ 2 1/2	3,300	21 1/2	20	+ 1 1/2
TWA	8 1/2	7 1/2	+ 1	6,600	9 1/2	8 1/2	+ 1
United Aircraft	36 1/2	34 1/4	+ 2 1/2	18,300	37 1/2	33 1/2	+ 4
United Air Lines	10 1/2	9 1/4	+ 1 1/4	8,900	10 1/2	9 1/2	+ 1
Wright Aeronautical	9 1/2	8	+ 1 1/2	120	9 1/2	8 1/2	+ 1

## NEW YORK CURB EXCHANGE

Week Ended Apr. 29				Week Ended May 6			
	High	Low	Net Change	Sales	High	Low	Net Change
Aero Supply B	4	3 3/4	.....	1,200	4	4	.....
Air Associates	7 1/2	7 1/2	+ 3/8	400	7 1/2	7 1/2	+ 3/8
Air Investors	1 1/2	1 1/2	+ 1/4	400	.....	.....	.....
American Airlines	21 1/2	19 1/2	+ 2	1,900	25 1/2	21 1/2	+ 4
Aviation & Transp.	2 1/2	2 1/4	.....	1,600	2 1/2	2 1/4	.....
Beech Aircraft	8 1/2	7 1/2	+ 1	4,400	8 1/2	7 1/2	+ 1
Bell Aircraft	26 3/4	24	+ 2 3/4	2,400	26 1/4	24	+ 2 1/4
Bellanca Aircraft	7 1/2	6 3/4	+ 3/4	1,500	7	6 1/2	+ 1/2
Breeze Corps.	7 1/2	6	+ 1 1/2	2,600	7	6 1/2	+ 1/2
Brewster Aero	9	8 1/2	+ 1/2	100	8 1/2	8 1/2	.....
Fairchild Aviation	12	11 1/4	+ 1/2	2,900	12	11 1/4	+ 1/2
Grumman Aircraft Eng.	15 1/2	14 1/2	+ 1	1,100	18	15 1/4	+ 2 3/4
Irving Air Chute	16 1/2	15 1/2	+ 1	400	19	16 3/4	+ 2 1/4
Lockheed Aircraft	25 1/2	22 1/4	+ 3 1/2	16,500	26 1/2	24 1/4	+ 2 1/2
Penn-Central Airlines	6 1/2	6 1/2	.....	300	7 1/4	7 1/4	.....
Seversky Aircraft	4 1/2	3 1/2	+ 1	10,300	4	3 1/2	+ 1/2
Waco Aircraft	4 1/2	4 1/4	+ 1/4	300	4 1/2	4 1/4	+ 1/4
Western Air Express	.....	.....	.....	.....	3 1/2	3 1/4	+ 1/4

# KLM

## FLIES LOCKHEEDS ON CARIBBEAN ROUTES



### LOCKHEEDS ARE BUILT FOR SERVICE IN EVERY CLIMATE

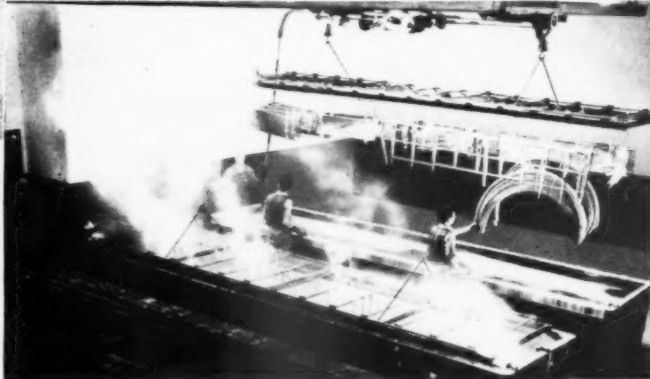
In addition to widespread service in Europe, K. L. M. (Royal Dutch Airlines) operates regular Caribbean air routes out of Curacao. Every month this oldest of world airlines makes scores of scheduled flights between tropical destinations in luxurious Lockheed 14 transports.

These famous airplanes are built to withstand the rigors of every climate. Standard manufacturing processes, such as anodization and chromate painting, insure the durability and efficiency of Lockheed transports in arctic cold or equatorial heat.

**LOCKHEED AIRCRAFT CORPORATION**  
BURBANK, CALIFORNIA • Representatives throughout the World



LOOK TO LOCKHEED FOR LEADERSHIP



Anodization is an electro-chemical oxidation of the surface of a metal which produces an oxide film highly resistant to corrosion—standard on *all* Lockheed airplanes.



Special equipment permits the application of a non-corrosive zinc chromate primer on aluminum and magnesium alloy parts. This protective coating greatly increases the life of the metal.



